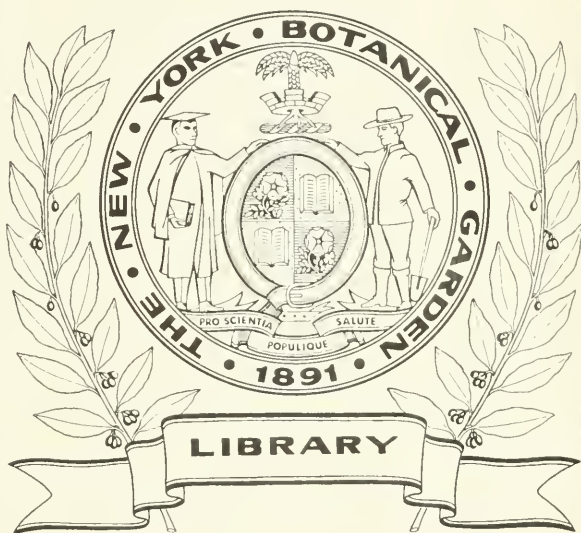


XF
.L64

v. 9
1866



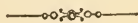
THE
FLORAL WORLD

AND
GARDEN GUIDE.

EDITED
BY
SHIRLEY HIBBERD, ESQ., F.R.H.S.

1866.

LONDON:
GROOMBRIDGE AND SONS,
5, PATERNOSTER ROW.





GREENHOUSE FERNERY AT STOKE NEWINGTON.

THE FLORAL WORLD

AND

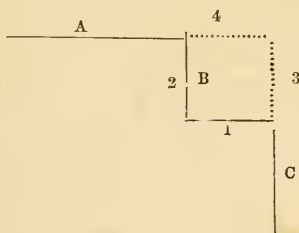
GARDEN GUIDE.

JANUARY, 1866.

THE GREENHOUSE FERNERY.



GIVEN, a recess in the walls of a house, and what shall we do with it? It is of no use to put the question to echo, who is represented as giving answers as required, because an honest echo could only reply, "Do with it!" which, at the best, would be ambiguous, and might be supposed to mean, "Do away with it!" In a certain sense, that is just what I have done; for, by converting the recess into a fernery, it is a recess no more, but a part and parcel of the garden, and yet not utterly separated from the dwelling-house. Please allow a few hap-hazard lines to represent the case in the first instance. If you suppose A to be one side of the house, and C another side, then B



will be the recess or hole in the wall requiring to be occupied in some way or other, or by some construction to be blotted out. Letter A looks west, letter C north; the garden-walk passes by the side of the house along the line A, and past the gap B; and as long as that remains a gap, it is abominably ugly. It is nine years ago since I filled up the gap B with a lean-to greenhouse, with the slope of the roof looking west, and the door on the side which looks north. Fig. 1 is the back wall of the house, fig. 2 the end wall, fig. 3 the door, fig. 4 the front. This was at first used as a small show-house; for, being easy of access, always in sight, and in a shady position, it served the double purpose of displaying a few good things in a place where it was convenient to see them, and also, by reason of its cool, shady position, keeping them longer in perfection than they would have remained in any more sunny position. In the

course of time, some building and planting took place a little way off towards the west, and the nice gleam of sunlight that enlivened the house from 2 p.m. till sunset was effectually blocked out, and the house became unfit for flowering plants. Instead of bringing an action against the neighbour who devoured my sunshine, I brought an action against myself, and the verdict was, that the shady house should be forthwith converted into a fernery. The stages were removed, and in their place a rockery was built upon a very simple plan, and which, considering the smallness of the house, proves delightfully effective, as affording at all seasons a beautiful scene, and very serviceable arrangements for the growth of plants. I employed a skilful bricklayer to do all the solid work, and, under my direction, he faced the back and end walls of the house (1 and 2) with a rugged mass of burrs from the brick-field, rendering it somewhat like the interior of a cave. The work was commenced at some little distance from the wall, and gradually brought nearer and nearer as it proceeded upwards, occasional large blocks being firmly cemented to the wall, and strengthened with hold-fasts; and between the walls and the burrs good loam was rammed in from bottom to top. Next the front wall (4) and the end (3) a low border was formed with a facing of burrs, this border consisting of good loam. No special device for drainage was resorted to, and it has never been wanted; a layer of broken bricks, about six inches deep, was put upon the tiles, and the soil thrown upon this rough bed. There is a trapped sink leading to a drain in one corner of the house, and all superfluous water finds its way there quickly, as the pavement slopes gently to it. The finish of the work I did myself, and it occupied me, at odd times, about four months, the work being essentially amusing, though attended with an occasional abrasion of the knuckles. The task I had was to make the "pockets"—openings for the purpose being left at intervals in the work. I made the "pockets" and planted the ferns at the same time. Some of the larger ones are planted in projecting receptacles, just as the brick-layer left them; but, generally speaking, I found it the best plan to stuff the necessary soil into a chink or gap, then place the fern in it, and, lastly, to introduce a piece of burr of suitable size to close it in, and this was done with the help of cement. I do not think I can profitably occupy further space with remarks on the formative part of the affair; details of this kind do not admit of being described minutely; all I can say in concluding this part of the history is this, that I never did a better job in my life; and the picture which accompanies this gives but a faint idea of the luxuriousness of the ferns with which the house is furnished, though the perspective is a slight exaggeration.

It is of the utmost importance, I should say, that the house is not heated. Happily it is remarkably proof against frost, which I attribute to the fact that the back wall (1) forms one side of the drawing-room, which is kept at a comfortable temperature all the winter, and of course the wall itself is in winter always warmer than the atmosphere outside the house. That frost does get in, however, is certain; last winter the thermometer several times indicated five to ten degrees of frost inside, and when the case became in any way

alarming, one of Joyce's charcoal stoves was used, and rendered important service. Speaking, however, in a somewhat general way, it is simply the truth to say that the inmates of this house take their risk of weather all the winter through, and during the winters of 1863-4 and 1864-5 were frequently exposed to frost; and that many rather tender kinds escaped destruction, I attribute to the fact that their roots are imbedded in a mass of brick and earth which retains a certain degree of warmth, being but slightly influenced by the lowering of the temperature of the atmosphere of the house.

I will now give a list of the ferns which have thoroughly succeeded in this house. Some of them are reputed to be tender, some are known to be hardy, and of the hardy kinds a few are generally considered unsuitable for growing anywhere except in the open air.

Adiantum pedatum, *A. affine*, *A. setulosum*, *A. cuneatum*.

Asplenium adiantum nigrum, *A. marinum*, *A. angustifolium*, *A. fabianum*, *A. bulbiferum*, *A. trichomanes*, *A. viride*, *rhizophorum*, *A. fontanum*.

Allosorus crispus.

Athyrium filix fœmina, *A. f. f. Frizelliae*, *A. f. f. Fieldii*, *A. f. f. crispum*, *A. f. f. corymbiferum*.

Ceterach officinarum, *C. aurea*.

Cyrtomium falcatum.

Davallia canariensis, *D. bullata*.

Doodia caudata, *D. aspera*, *D. lunulata*.

Gymnogramma leptophylla.

Lastrea æmula, *L. thelypteris*, *L. novaboracensis*, *L. Goldieana*, *L. cristata*, *L. dilatata*.

Lomaria chiliensis.

Nephrodium exaltata, *N. pectinata*.

Onoclea sensibilis.

Osmunda Claytoniana, *O. regalis*.

Polypodium vulgare, *P. Robertianum*, *P. dryopteris*, *P. phegopteris*, *P. aureum*.

Pteris flabellata crispa, *P. hastata*, *P. cretica albo-lineata*, *P. scaberula*, *P. serrulata*.

Platycterium aleicorne.

Polystichum acrostochioides, *P. aculeatum proliferum*, *P. angulare*.

Phlebodium sporocarpum.

Scolopendrium vulgare crispum, *S. v. ramo-marginatum*, *S. v. aleicorne*, *S. v. ramosum*, *S. v. multifidum*, *S. v. Wardii*.

Todea hymenophylloides (pellucida).

Woodwardia radicans.

Equisetum telmaitiea, *E. sylvaticum*.

Selaginella denticulata, *S. cæsium*, *S. apoda*, *S. obtusa*.

Isolepis gracilis.

Respecting a few of these, some remarks may be necessary; and

first, it should be said, that in planting, a good mixture, usually consisting of turfy peat, torn up to the size of walnuts, with a good proportion of silver sand and broken flower-pots added, was introduced for the ferns to root in. The strong growers soon found their way into the loam, of which the bulk of the bank in front and the filling of the wall consist. In a few cases a mixture of broken stone, broken flower-pots, and sandy peat was used.

The *Adiantums* are all planted against the end wall, which is most shaded, and their fronds spring out in lovely tufts. They grow very luxuriantly, and contribute greatly to the beauty of the scene.

Asplenium adiantum nigrum and *A. marinum* are planted on the back wall, near the door, where they have plenty of air, as the door is kept open very much in summer-time; they have both grown more luxuriantly than I have ever seen them otherwise, whether in pots, cases, or open-air fernery. It is quite worth while to build a house expressly for growing such ferns as these, as there is secured for them a Devonshire or south of Europe climate, and any degree of shade and moisture required.

Allosorus crispus is a troublesome fern to grow, under any circumstances. I never thoroughly succeeded with it till I planted it in a pocket near the door, in a mixture of peat, sand, and broken stone. In watering, care should be taken not to throw water with any degree of force on this fern, as the fronds are apt to snap off close to the crown.

Athyrium f.f. and *A. f.f. crispa* make magnificent plants in suitable positions in a house of this sort. Here, again, the perfection of the true Lady-fern amply repays one for the cost of the structure. My best plant of Lady-fern may be seen in the picture, forming a distinct bold tuft on the end wall, a little to the right of the *Platynerium*, and just below it. *A. f.f. Frizellie* is also good and distinct, and it ought to stand somewhat apart from other ferns, to show its character fully.

Ceterach officinarum occupies a small pocket near the door, midway between the roof and the ground: it grows superbly; I never could do it so well in a pot or on an open-air rockery.

Davallia canariensis thrives in a very shady position on the end wall. It has a large pocket, and the tawny claws spread out over the face of the wall in a very grotesque manner. I turned out a large plant for the purpose, and it has succeeded admirably. This fern always requires to be rather dry at the root: excess of moisture is death to it.

Cyrtomium falcatum is on the bank in front, and may be seen in the figure, throwing its "laurel-leaf-like" fronds finely above the tufts which surround it.

Gymnogramma leptophylla has established itself. In 1863, a pot plant was placed in the house for a few weeks, and afterwards removed. In the spring following, a few plants made their appearance from self-sown spores, and since then it has held its own, and is a great adornment where it occurs on ledges and in chinks. The *Doodias* we have in the same way, and appear in plenty from self-sown spores; *D. caudata* being most addicted to this good habit.

Onoclea sensibilis grows grandly on the bank, and is shown in the figure in the right hand corner. The fronds average two and a half feet high, with an amplitude of tender green, and the fruit spikes are produced in great plenty. It thrives well in the open-air fernery, but never attains to such luxuriance as when planted out under glass.

Pteris flabellata crispata is a magnificent fern, with light green pectinated fronds, which attain to stately dimensions. It is planted on the bank in front, and is now (Dec. 15) as fresh and bright as in July, and still throwing up fronds, so that it must be nearly hardy.

Pteris scaberula fills a suspended basket, and is one of the best of ferns for the purpose: the fronds are most delicately and elegantly divided. The best baskets I have ever had for this purpose are some made of earthenware, which I obtained of Messrs. Hooper and Co., of Covent Garden. There is only one objection to them, that if they fall they break, but never if they do not fall. They last any length of time, which is not the case with wire or wood. The only safe way to keep the plants in health in baskets is to dip them periodically. To trust to the syringe is a mistake.

Platyceerium alcicorne has passed through two winters safely, and grows well. The plant is on a very grotesque block of wood, suspended against the end wall, where it appears to great advantage.

Phlebodium sporodocarpum perished the first winter after planting. The following spring I planted another, and took the precaution to take it out, and pot it before winter, in order to keep it in a warm house, returning it in spring again to the place it formerly occupied. This treatment answers admirably, and it is a great gain to the embellishment of the house, as the huge glaucous fronds and tawny rhizomas of this fine fern render it very distinct and beautiful. It has a grand appearance, springing from a recess in the rock.

Polypodium aureum also perished in the first winter after planting; but as it could not be spared, on account of its noble character, I adopted the same plan as with the last named, and with complete success. With the exercise of proper care, ferns may be alternately planted out and potted for the winter the same as bedding plants.

Scolopendriums grow wonderfully fine in a house of this sort. I have measured fronds on a plant of *crispum* eighteen inches long, and three and a half inches broad. The small and delicate varieties would answer well to plant on ledges and in small pockets.

Todea pellucida grows far better in a cool house than in a hot one, and keeps as green all winter as a hardy *polystichum*. There is a plant in this house, placed low down near the ground in a damp shady position, in perfect health and beauty, quite at home, and if allowed a few years' growth will no doubt make a grand specimen.

Woodwardia radicans is planted in the extreme corner, high up near the roof, and is at liberty to root down as it pleases between the burrs and the walls. The fronds fall over and hang down in front of the rockwork, and have a most natural and noble appearance.

Equisetum sylvaticum and *E. telmaitiea* thrive amazingly planted near the ground. Their fairy-like elegance is delightful, and it is a pity that fern-growers know so little about them.

Selaginellas answer well to plant anywhere on ledges and in

crevices. A handful of peat or cocoa-nut fibre refuse pressed on a projection an inch or two wide, and then a bit of the plant pressed down on it, is all the planting required. They soon spread right and left, and sometimes run a yard or two where there is no soil at all, feeding on the moisture which the syringe supplies, and adding most beautiful forms and colours to the scene. The lovely *S. cæsius* would soon spread all over the house if allowed; and really if it did it would be scarcely fair to complain, for one cannot have too much of its deliciously coloured growth, which so nearly resembles the peculiar blue of salts of copper, and has a metallic lustre very distinct from what is common amongst plants.

The roof was covered *outside* with tiffany from the first, and the covering has never been renewed. When it rots away a fresh covering will be made of the same material. In winter it helps to keep out frost, and in summer it moderates the light; it is, in fact, essential.

Abundance of water is supplied during the summer, the walls being syringed daily during hot dry weather. In spring and autumn watering twice a week is enough; and at this time of year once in two or three weeks suffices. It would not be well, however, to allow any of the plants to get quite dry, even during winter; though of course while frost prevails watering is suspended.

SHIRLEY HIBBERD.

NEW SERIES OF THE "FLORAL WORLD."



TIME rolls his ceaseless course, and a periodical begun in 1858 must enter upon its ninth year in 1866, if it enters upon another year at all. Number nine is a greater mystery than number seven, and works greater wonders in arithmetic. If it is not required to work wonders in this case, it may at least be allowed to inaugurate a change, and as the FLORAL WORLD is older, it must appear wiser, and the first essential thereto is to alter slightly its external and internal aspects. Thus, of necessity, we begin with the first number of the ninth volume a new series, and we ask our friends for an advance of wages, having it in our intention to perform for the extra money extra work. It was not until after the issue of the number for December last, that the advisability of this course became apparent; otherwise, an announcement of the intention would then have been made. It is to be hoped, however, that those who are surprised will also be pleased; that those who frown at first will smile at last; and that an old friend will be none the less welcome amongst its thousands of supporters, by having a fresh face and a youthful expression, and exhibiting a deeper purse than hitherto to put the subscribers' money in. Any way the deed is done: if wrong, we ask for forgiveness; if right, we ask for a general and perpetual recommendation, and shall consider the case fairly met if every subscriber will make it a condition of friendship that all the friends are

to take the FLORAL WORLD, and in their turn recommend it again; and so on, and so on, until all mankind is made appreciatively convinced of its usefulness and beauty, and its necessary connection with the sum total of human happiness. Anything less than this we could not say at such a juncture; we are eight years older than when we began, but the employment has been so delightful, that we are eight years younger in spirit, and hope, and strength, and so, ladies and gentlemen, you may reasonably expect

“Things unattempted yet in prose or rhyme.”

A FEW WORDS ABOUT THE FUCHSIA.



CONSIDERING its adaptability to so many different soils and circumstances, its easy management, and its intrinsic elegance and beauty, it is surprising the fuchsia does not occupy a more prominent position than at present, as a decorative object in our gardens. No flower of similar pretensions is preserved or propagated with so little trouble, even by the veriest beginners in the gardening art, yet we seldom see it used except as a greenhouse or conservatory plant, or now and then, perhaps, as an isolated and neglected bush, in old-fashioned borders. As a bedder it has been a failure, not because of any natural unsuitability for the purpose, but because it has been injudiciously employed. Those, however, who wish for a new and brilliant sensation in floricultural achievements, should seek fresh applications of this favourite flower, perhaps only second to the rose in natural beauties, and possessing even an advantage over that in greater insensibility to the effects of smoke.

Let us suppose, for instance, that we have a long border of grass, with pincushion beds at intervals, what could form more appropriate and elegant centre plants to them, than standard fuchsias, judiciously contrasted in colours? or, if planted alternately in rows with standard roses, how charming and unique would be the effect while the roses were in bloom, and how would the dreary aspect of their mop-like heads be relieved during the intervals of flowering by the continuous blossoms of the fuchsias, which seldom cease from early July to autumn, in the open ground! These specimen standards might be plunged in pots; and any one possessing a greenhouse or similar structure would have no difficulty in preserving them from year to year. There are certain kinds, again, which succeed admirably when trained against a wall. One of the most exquisite objects I ever beheld in any garden, was a plant of “Banks’ Glory,” trained in that manner to cover a space of six or seven feet each way. For some months every year, it was literally a blaze of scarlet flowers, and was the admiration of all who saw it. I may add here, that this old favourite is still among the best for almost all purposes, and, like “Jacqueminot” among the roses, has been the parent of several of the choicest varieties that have since been raised.

A huge pyramid of fuchsias would form a most delightful feature

in any part of a garden where too much sunshine did not prevail. Excessive solar heat is inimical to the flower, producing that abhorrent pest, the red spider, when the plant is ruined for the season, syringe him or soap him as you will. This arrangement should be skilfully concerted as to gradations in growth and colour: the latter might be arranged in circles, or shaded from the centre to the edge, or in alternate contrasts of dark and light. A sloping bank also planted on similar principles would produce a new and charming spectacle. Some kind of fuchsias, of a running and vigorous growth, would prove an interesting appendage to rockeries and grotto work, being planted at their base in a pocket of rich soil, and their long shoots fixed in festoons here and there to prevent their stalks, which are very brittle, from being broken by the wind. The same kinds might be used for training up columns and door-posts, two or three of various colours being intertwined. There are many varieties of pendulous habit, which form the best basket plants for any positions where basket plants are in character. Indeed, wherever the fuchsia is applied it must always delight any eye possessing an appreciation of the beauty of colour and elegance of form.

Perhaps it is not too much to assert that there has been little real advancement in the properties of the fuchsia during late years. I am heretic enough to consider the double varieties a mistake, seeing nothing to admire in confused and crumpled-up corollas; and to believe those more recent flat monstrosities, resembling some crushed entomological curiosities, simply as enormities as discreditable to those who raise as to those who buy them. In all kinds I have observed an increased tendency to coarseness of texture and dulness in colour of the sepals, quite opposite to the wax-like and varnished surface which is a primary quality in a first-rate fuchsia. The same degeneracy is apparent in the kinds with white corollas, which are, moreover, constitutionally weak. There are few good whites; the sepals are almost all impure, and tipped with green.

The year when *Souvenir de Chiswick* and *Bo-peep* came out, appears among fuchsias to correspond with the memorable year 1862 among roses. We then received some of the best kinds we have in cultivation. In most particulars, *Souvenir de Chiswick* is the best type of fuchsia known; its curved sepals are perfect, its corolla is well formed, and of a beautiful colour; its foliage is fine, and has originated all the varieties possessing yellow variegation in the leaf. The only drawback is, that its colour is not so intensely scarlet as it might be. *Bo-peep* is the type of another excellent kind—the sepals sharply thrown back, the corolla somewhat expanded, but well shaped, and the growth short-jointed and robust. Wonderful is the best model of that style of flower where the sepals reflex in the extreme. There are appended here a few names of favourites of my own, with a slight notice of the purposes for which they are suitable. Some may consider them out of date; but a poet has written, “A thing of beauty is a joy for ever;” and this is true of many old flowers.

Cartoni, small scarlet flower, dark corolla, profuse bloomer, sepals

sharply thrown back, exceedingly bright and coral-like, one of the best for climbing, or indeed for any other purpose. Old; some difficulty may be found in obtaining it.

Snowball, small, pure waxy white, lilac corolla; very free, and of good growth. Old, and little known; quite suitable for a lady's pet.

Clapton Hero, large, bold, crimson flower; very strong grower; not well shaped, but showy; suitable for a centre plant, or large bush. Old.

Banks' Glory, bright sepals, well reflexed dark-blue corolla; strong grower; the type of the following good fuchsias, which much resemble it—namely, *Prince Albert* and *General Williams*.

Catherine Hayes, much like *Bo-Peep*.

Little Treasure, *Emperor Napoleon*, miniature *Bo-Peeps*, and suitable for foreground flowers.

King Charming, a small, free, bright coral flower, for the same purpose.

Conqueror and *Alpha*, strong-growing crimson flowers; make good central plants.

Venus de Medici, a splendid variety, creamy fawn sepals, lined with pink, corolla lovely violet blue; strong grower, fine shape, but will not bear much sun, which spoils the colour.

Hermione, *Lord Warden*, *Count Cavour*, *King of Purples*, *Emblematic*, *Senator*, are scarlet in various shades, among the most genuine of more modern varieties.

Queen of Hanover, *England's Glory*, *Marchioness*, *Rose of Castile*, are among the best of the white varieties; *Princess of Prussia* and *Reine Cornelissen* of the scarlet sepals and white corollas.

All I have named are suitable for the purposes suggested in the commencement of this paper. It is impossible, however, here to give an exhaustive list; sufficient have been pointed out for ordinary collections, which observant amateurs can readily extend for themselves.

W. D. PRIOR.

Homerton, Dec. 11.

THE BEST VARIETIES OF GARDEN PEAS.



GOOD varieties of peas abound, yet every season witnesses some addition to the lists, and of course the new varieties are offered on the ground that they possess some quality not to be found in varieties already well known; they are either earlier, or more productive, or of better flavour, etc., etc., *ad nauseum*. For several years past, I have grown large collections of varieties of peas, and in the spring of 1865 extended my operations in this way in consequence of the large number of new varieties which were then offered to the public. To tell the whole story of experimental pea-growing would consume an immense amount of space, and might, after all, prove anything but profitable. But I can

give some results in a few words, and it may serve some useful purpose to readers of the FLORAL WORLD to be advised of a few good sorts which are adapted for the supply of private tables. Let me suppose that I have done with horticulture, except as an amusement, and desire a supply of peas, without reference at all to the determination of the relative merits of many varieties. Then I think I should be content with seven sorts at the utmost, and I would do very well with four. I should arrange my seven as follows: 1, *Sutton's Ringleader*; 2, *Early Emperor*; 3, *Dickson's Early Favourite*; 4, *Paradise Marrow*; 5, *Veitch's Perfection*; 6, *Ne Plus Ultra*; 7, *British Queen*. Such would be their order of coming into use, and I should make several sowings at intervals, beginning (soil and climate permitting) in November and continuing to sow till the last week in May. At Stoke Newington November sowing would be absurd; the first of February is as early as we dare sow peas under the best of circumstances; but on the west side of London, where the soils are light, November sowing of the earliest sorts answers admirably, and the result is, peas on the table in the month of May.

I should prefer *Sutton's Ringleader* (which is the same as Carter's First Crop) for my first early pea; it behaved well here in 1865, and has but one fault, that of growing in a very irregular manner, the result of which is that some plants bear very early close to the ground and others shoot up and top them and bear three weeks later, so that there are two good gatherings. This pea would render unnecessary the dozen or so first early varieties that are classed with it, and I should prefer *Early Emperor* to follow, because of its large pods and abundant production. It would succeed *Ringleader* if sown the same day, there being about a fortnight difference in their dates of first podding.

Dickson's Early Favourite is a most productive second early pea. I was greatly disappointed in my first trial of it when I saw the small pods it produced. Indeed, I felt disappointment at the smallness of the seed, and did not sow much of it. But it proved in the end one of the most useful peas I ever grew; its fruitfulness was something remarkable, and though a small pea, it is of excellent flavour, and comes to table a good colour, which is a matter of no small importance.

Princess Royal is certainly one of the finest peas known. It is described as growing two feet, but in my well-manured soil it rises nearer three feet, and is tremendously prolific; the pods large, well filled, and the peas make a fine dish.

Paradise Marrow succeeds *Princess Royal* closely; and it is well, if constant supplies of peas are required, to sow both sorts the same day, and a fortnight afterwards to sow a few more rows of *Paradise*. This is a tall pea, rising five to six feet, the pods are large, the peas large; when cooked, sweet, marrowy, and melting. I prefer a sweet flavoured pea, and therefore recommend this, but many people object to sugary peas, and to such I should recommend instead *Champion of England*.

Veitch's Perfection rises two to three feet, bears profusely, the pods are short, the peas large, a fine colour and quite marrowy. I

should be inclined to pronounce this the best pea in cultivation, but it is hard to say, among so many good, which is really the best.

Ne Plus Ultra is a tremendous grower, never making less than six feet, and I have known it go eight feet or more on rich ground, and carry the stakes right away and come down with a crash with its weight of pods during stormy weather. Many a fine crop of peas is lost, or nearly so, through insufficient staking; these tall varieties need to be well supported, both because of their enormous fruitfulness and the effect which a gale of wind has upon them. This pea will continue for weeks producing its handsome pods, and it is one of the best late peas we have.

British Queen is well known. It requires stout stakes, as it rises full six feet, and sometimes more. I have often known it to continue in good bearing from the 1st of September to the 1st of November, and then break down through frost rather than exhaustion. The first time it ever failed, to my knowledge, was last summer, when it got burnt by drought, and soon gave over; even in that case we had a good supply, and the quality was admirable.

If I were restricted to four sorts, I should take, 1, *Early Emperor*; 2, *Princess Royal*; 3, *Veitch's Perfection*; 4, *British Queen*.

In some districts pea sticks are scarce and dear, and the dwarfest kinds are more profitable than those that are tall. The following are a good succession of dwarf growers: 1, *Sutton's Ringleader*, 2½ feet; 2, *Bishop's Long-podded*, 2 feet; 3, *Princess Royal*, 2½ feet; 4, *Gilson's Glory*, 3 feet; 5, *Yorkshire Hero*, 2½ feet; 6, *Knight's Dwarf Green Marrow*, 3 feet.

Districts lying warm and dry, with a light early soil, will suit for two very excellent varieties, namely: *McLean's Little Gem*, a fine early pea, rising only 1 foot, and *Advancer*, a first-rate marrow, and the earliest of all marrows, rising 3 feet. In my trial ground last year, these two varieties were quite destroyed by frost in the month of April, and were in all their early stages the most tender among a collection of thirty sorts.

The following are also good varieties: *Eley's Essex Rival*, very productive second early, 4 feet; *Prince of Wales*, a fine second early, wrinkled pea, 4 feet; *Carter's Surprise*, very productive for main crop, 4 feet (this beats *Fairbeard's Surprise*); *Premier*, large, productive, 4 feet; *Royal Blue*, very distinct, 3½ feet; *Auvergne Marrow*, grand scimitar-shaped pods, fine flavour, 4 feet; *Sutton's Berkshire Hero*, a tremendous pea, 6 feet. But the first seven will do for any one who is not infatuated, which is unfortunately the case with the writer.

S. H.

NEARLY HARDY GREENHOUSE PLANTS.



AS an amateur cultivator, intensely fond of gardening, but occupied in business a large proportion of those hours in which, usually, gardening work should be done, I wish to offer a few words to amateurs situated like myself, and my text shall be, "Grow as many nearly hardy greenhouse plants as you can." How often does it happen that the old man we employ as jobber, does not turn up at the right moment to light the fires, or that we ourselves are hurried or idle, or otherwise influenced in a way which operates prejudicially to our plants. Yet we love our plants, and when frost melts them, or fire burns them, or drought makes them shrink into substitutes for tinder, we grieve deeply, and would call them back to life and health if we could. Now experience has taught me—and, by the way, how much do I owe the FLORAL WORLD for it; may the Editor's shadow increase (I'm told he has no shadow, a sort of Peter Schlemel)—experience has taught me that nearly hardy greenhouse plants stand ill-treatment with greater impunity than most other plants, and are just the things to pay one for extra trouble if we like to bestow it; and, on the other hand, are not likely to be lost, even if we treat them badly.

Take the Camellia, for instance. I know it requires skill to grow it well; and as it is the grandest greenhouse plant we possess, it is worth all the skill that can be bestowed upon it; yet if we neglect we do not lose it; if frost sets in, ten to one if the camellias suffer, unless they have been roasted the day before, and the FLORAL WORLD has warned us often enough against that folly. The only bad habit they have, is that of resenting ill-treatment by flinging their flower buds at you. To prevent that, remember the advice which has been given in these pages, and never let them go dry, after they are put out to ripen their wood. This I have again and again proved to be the real secret of the matter.

Then see what a choice we have after the Camellia. There is the Bottle-Brush, with its brilliant feathery plume of richest crimson, which only needs protection from the severest frost; the Cytissus, brilliant with gold in the early spring months; the Corydalis, which ten degrees of frost will not kill; the shrubby Veronicas, blue, lilac, red, needing only to be protected from the severest frowns of the winter; the lovely Plumbago capensis, with its thousands of turquoise-like flowers; the Chinese Primula, so nearly hardy, and now in flower delightfully; the Cyclamen Persicum, lovely as sweet sixteen in its rosy blushes, and fragrant as the may; Epacris and Ericas, if we can only keep them from being soddened with damp; Azaleas in endless variety; Fuchsias, most shamefully neglected, and, I suppose, some soon to be despised; and a few Ferns, such as *Adiantum cuneatum*, *Asplenium bulbiferum*, *Davallia Canariensis*, *Nephrolepis exaltata*, *Pteris serrulata* and *cretica*, *Platyloma falcata*, and *Doryopteris sagittifolia*. To make up the furniture we can have zonale geraniums without end; and I for one,

having a great many already, and being enamoured of them, intend to order all Mr. Hibberd's new varieties, feeling confident I shall have something new and good; for amongst our practical men he appears to be pre-eminently a master of this popular flower.

I am quite aware I have named only very "common" subjects, but better to have our greenhouses filled with things we can really manage than incur the risk of disappointment by attempting that which in our circumstances is beyond our skill and opportunity.

Brixton.

W. B. B.

CULTIVATION OF THE RANUNCULUS.



TO bring the ranunculus to perfection requires generous cultivation; in a poor soil or a dry climate it languishes, and soon becomes degenerate; and at certain seasons it requires vigilant watchfulness, or all previous expense and labour may be lost. But it deserves all the attention that may be necessary; and as there need be no mystery about its cultivation, so every lover of high-classed flowers may adopt it as a familiar friend. If you turn to some of the older writers, or question some of the older growers of this flower, you will learn that nothing is more difficult than to grow a fine ranunculus; failure is seen to be more frequent than success; and the whole of this is to be attributed to the quackery and empiricism of men incapable of reasoning on the commonest garden operations.

The ranunculus is a tuber which throws out a bunch of fibres, that strike downwards into the soil; it is perennial, loves moderate moisture, and a firm loamy bottom; and as it blooms in the hottest and driest months of the year, it needs frequent watering and occasional top-dressing to prevent excessive evaporation.

The proper soil is a rich mellow loam, the proper manure well-rotted cow or horse-dung; recent manure ruins it; so do any exciting compounds of night-soil, blood, or chemical stimulants, or excessive quantities of manure of any kind, all of which have been recommended in bewildering numbers, and the proportions stated with ridiculous precision. If the soil of the garden is at all suitable, manure it well in preference to preparing composts; if it is not of a loamy and somewhat crumbly character, procure the top-spit of an old pasture—one in which buttercups abound is best—ridge this up, turn it occasionally for six months or more, and with this and well-rotted dung prepare your bed.

A model ranunculus bed would be formed of loamy soil that had been ridged up and turned over once a month for a year. The old soil would then be taken out to a depth of fifteen inches, a layer of rotten cow-manure two inches thick would then be placed in it, the old sweetened soil would then be worked up well with half its quantity of decayed stable and cow-manure, and with this it would be filled up, and then edged either with some neat and low-growing

edging plant, or with edging tiles, which would have the effect of an elegant stone moulding, with the advantage of being easily removed in altering or breaking up the bed. Arrangements would then be made, by means of hazel hoops and rods, or a properly constructed piece of light iron-work, for the reception of a tarpaulin or canvas, to exclude late frosts, heavy rains, or excessive sunshine, during the blooming of the plants.

Without precisely such arrangements, an amateur desirous of a gay bed of ranunculuses, but not aiming at the production of show flowers, might make sure of a good display by properly planting them in well-manured loam in a *firm state*, and if prepared three months before planting, all the better. The roots of the ranunculus always work deep, hence a shallow soil is quite unsuitable. A depth of three feet is none too much, and if the lower spit is a sound loam the roots will reach it, and frequent watering will be less necessary. In a very heavy soil a little sand may be added with advantage, but a very slight admixture will be enough.

It is getting customary now to plant the ranunculus in February; November used to be the month, and, in situations not subject to severe spring frosts, November and December may still be considered the best times for planting. Not that the flowers are finer,—they are simply earlier; and for this gain there is occasionally a risk of losses through frost. The bed ought to be prepared a full month at least before planting, to give it time to settle and become firm, for failure is certain if the soil lies light and spongy. For February planting, the bed ought to be ready early in January, and the best time for planting is between the 1st and 20th of February, the precise day or week being determined by the weather. There has been a good deal of discussion as to the proper planting season, but it is now pretty generally agreed that autumn planting is attended with risk, for which early blooming is the only compensation, and that the first twenty days of February are the safest for collections of any value. In cold, wet, and very tenacious soils, or in exposed situations, it would even be better to defer planting to the first week in March; and planting may be the more safely deferred with the ranunculus than with most other tubers, for they retain their vitality out of the ground two or three years, and, if kept cool and dry, suffer but little exhaustion by delay.

To plant a bed of ranunculuses is rather a delicate affair. It should be left to no subordinate, who is not thoroughly capable of delicate gardening manipulations. It is a bit of fancy-work for the amateur himself, and one in which he will take pride and pleasure. First of all, judge if the soil is in a proper condition. It ought to crumble when handled, and scarcely soil the fingers. If pasty and adherent, the planting had better be delayed till a fine day has dried it a little, for unless the soil can be handled freely, the planting will turn out a clumsy affair.

There is more than one way of planting ranunculuses. Some growers mark off the bed, and then just stick the claws of the tubers into the soil, and cover the whole with sand; others dibble them

in, in the way that beans are sown by farmers; but the best plan is to drill them.

Choose a fine day; have your tubers sorted as you mean to plant them, and your zinc or wooden tallies ready. You have already at the fire-side planned how the colours and sorts are to be arranged, and have entered in your note-book all necessary heads, so that when you begin planting you will have to work only, and not to consider.

First rake the soil so as to give the bed a gentle convexity; then put down the line for the first row, and with a small-pointed hoe, or the corner of a common one, draw the drill exactly two inches deep. The orthodox depth is an inch and a half, but I prefer, and therefore recommend, a trifle deeper, on the principle of giving the root free work before the foliage appears, as well as to escape as much as possible the effects of the very late frosts to which we have been subject for some years past.

Into the drill sprinkle a very little fine sand, then proceed according to your book, and plant the first row of tubers, inserting the proper label *at once*, not trusting to memory a single jot. Each tuber must be gently pressed into the soil to about half the length of the claws, care being taken that none of the claws are broken in the process. The drills may be five inches apart, and the roots four inches apart in the drills, though some growers prefer six or even eight inches distance every way. The first mode will not be injuriously close, and it forms a very rich bed.

When the drills are filled and tallied, sprinkle a little sand over the tubers, and then neatly rake down the soil over them, and dress up the bed as you intend it to remain. It may be as well to state as a last word on this point, that if the roots are planted too deep, they will not flower, for instead of throwing up the flowers they will exhaust their energies in forming new tubers near the surface. Be careful, therefore, never to make the drill more than two inches deep.

As soon as the plants begin to push through, the bed should be carefully trod over between the rows, firmness of the soil being a prime element of success in the general cultivation. If the weather is dry, they may be watered night and morning, and if the soil has not been so liberally manured as it ought, weak manure water may be used. The ranunculus likes a moist and generous soil, but nevertheless it is a mistaken notion to water it either frequently or copiously. Artificial watering never does as much good as is expected of it, and if it can be dispensed with it will be better for the plants. It is a good plan to mulch the bed with moss or old tan, or even ancient and well-sweetened manure, placing the dressing neatly along the rows. Such a procedure will frequently obviate the necessity for watering, and carry the plants through till the rain falls.

This is a flower which rarely disappoints us, if it is properly treated. It needs a quiet sort of culture. Excessive drought, moisture, manure, and stimulating nostrums of all kinds, are inimical to success. The tubers should never be placed in immediate contact with manure; they should never be planted deeper than two inches; and should be arranged with the nicest care. Then for

two whole summer months you will have a glowing carpet of colour, in which the brightest dyes will blend and mingle to form softest, harmonious, and boldest contrasts.

At p. 219 of last year's volume of the *FLORAL WORLD* is a list of the best known varieties of ranunculuses. C. T.

LADIES' FLOWERS.

BY MR. W. ROBINSON, ROYAL BOTANIC GARDENS, REGENT'S PARK.



LADIES' Flowers! The name sounds odd. Surely *all* flowers have hitherto been beloved of ladies. But having used the name, we must find the flowers—ladies' flowers “to the manner born.” What shall we choose? The queen of flowers, the rose? No, no! it would not do for me to enter the “Rose Garden” in an establishment conducted by Mr. Shirley Hibberd, at least not without serving an apprenticeship to him. The gaudy flowers of the summer garden—the geraniums, and calceolarias, and petunias? No; we will not waste time upon Birmingham ware while the finest filigree work of silver is at hand. Many things suggest themselves both for indoor and outdoor gardening, but chief and above all there is one. This is a dull, breezeless December day, a leaden day, a cloudy London December day, but high up and afar off there is a little rent in the grey canopy, and through it peeps the blue of heaven. It brings a little vision of a sunny spring day, of blue-bells and primroses, violets and forget-me-nots, and of spring flowers generally. I will write of them:—

“Spring's early flowers, spring's early flowers,
How beautiful ye seem,
All pure and bright, like hope's gay light,
And sweet as love's first dream.

Fragrant dwellers of the lea,
When first the wild wood rings
With each sound of vernal minstrelsy,
When fresh the green grass springs.

“What can the blessed spring restore
More gladd'ning than your charms?
Bringing the memory once more
Of lovely fields and farms!”

SPRING FLOWERS.

The flowers of spring, apart from their own delicate beauty and purity of colour, possess a peculiar charm for many other reasons. They come when we are tired of the fireside, and when the charm of indoor winter recreation—pleasant enough to think of in autumn—is quite gone. Flowers, a scarcity to many, and when everybody is filled with some of that rapture which nature displays when the folded buds thrust out their little hands into the ray, “when first

the wild wood rings, and fresh the green grass springs." As compared with the flowers of other seasons, the flowers of spring may be compared to the clear enlivening days of their season of blooming as contrasting with the dreary, hazy days of midwinter in London. This would be true if only a single family of spring flowers was in existence, and that family the crocus! There is nothing to be seen in British gardens throughout the year more beautiful than a variety of the best kinds of crocus, fully blown on a sunny spring day. But though I well know that such crocuses as Sir Walter Scott, La Majestueuse, Albion, and Bride of Lammermoor, are not half so much grown as they deserve, I am not going to speak of them, or tulips, or hyacinths, or any other class of plants whose beauties have often been written about. I know the readers of the FLORAL WORLD can appreciate novelty if any readers can, and particularly that novelty which is exquisite and beautiful, and I want to introduce to them some of earth's fairest flowers—lady-like flowers as a natural consequence. Well, then, before introducing my "first favourite," I will ask all ladies fond of a floral gem to select a fancy little spot, on a rockwork, or raised border, or any other place fully exposed to the sun and free air, and where nobody can disturb the thing planted, that we may have a place to show and receive him. Scoop out that spot to the depth of twelve or fifteen inches, and fill it with *light sandy earth* if the soil is not naturally such. Ladies, Mr. *Iris reticulata*. As I cannot introduce him in a full-blown state at this season, his flower may be described as the most beautiful of any of his transcendently beautiful family. The flower of *Iris reticulata* is of the richest blue purple, with a centre of golden yellow on each petal. When first bright days of spring return, this, by far the earliest, as well as most beautifully-coloured iris, appears, and soon opens into flower. It does not grow more than six or eight inches high. It forces freely, but few, if any, can afford it for that. It is deliciously scented. These qualities surely entitle it to the special protection of the ladies. Many of them must only take my word for it till they see the plant in flower. Then, and not till then, can its loveliness be appreciated. Plant in the careful spot already found out, and mind that nobody meddles with the place, except those who know the plant and its value.

It differs from most other irises by being bulbous and dying down like the crocus, having a root nearly similar. This is all the better for London and town gardening, as the leaves are at rest when the smut and bad weather most prevail. The only nurserymen that grow the plant extensively at present are the Messrs. Backhouse, of York, but many can supply it. The Dutch growers have it, no doubt, and I hope it will some day be plentiful. Those with a solitary specimen, and without a nice place to grow it in, such as I have described, may advantageously keep it in a pot in a cold pit or frame near the glass till it has increased.

Now I do not wish to expatiate too much upon spring flowers, having a few other things of beauty to talk of, but we must find half a dozen companions for this exquisite little Spaniard. Of course, every lady that loves or cultivates spring flowers has that

charming early spring flower, *Scilla siberica*, with flowers of the most vivid porcelain blue. To it might be added, with great advantage to the lady's spring garden, *S. bifolia*, a darker and richer blue than *S. siberica*, not quite so tall, and quite as well worth growing; *S. amœna*, purplish blue, flowering after the Siberian squill and *S. bifolia*, and a good size larger than either; and *S. bifolia alba* and *rosea*. There are others of great beauty, but for the present we will be content with a few of the best.

Bulbocodium vernum is, like the Iris, a native of Spain, but it has taken kindly to this little island, and grows strongly in it if at all well treated. Before the snow is off the ground, in the very dawn of spring, its pale rosy purple flower buds peep up—ay, before the crocus itself. Nothing can be more exquisite. Handsome as the flowers are in this state, the distinction in colour afforded by it is the greatest boon to the early spring gardener. There is nothing else at all like it in this respect. Among snowdrops—common or Crimean—its effect would be unique, and indeed it may be mingled with any choice spring flowers with the best advantage. It is very dwarf, and in baskets or vases for indoor work would be best near the edges. We have talked of a purple and yellow, a pale rosy purple, and several blue flowers; the next is of a rich yellow. The “Hoop Petticoat Narcissus” it is commonly called; *Narcissus bulbocodium* in scientific language. It, like the others I name, is perfectly hardy, while dwarf, and neat, and choice as any flower from the sunniest and most genial of climates can be. It should be grown in sheltered but not in a shaded place, and in light deep and free soil, to attain perfection. We will bid good-bye, for the time being, to choice spring flowers, with two gems rarely or never seen in gardens, but that is the very reason why they should be written about, and brought from their obscurity. In the Kew catalogue, compiled thirteen years ago by Mr. Niven—now curator of the Hull Botanic Garden—and perhaps the most complete list of lovely hardy plants extant, there are no two mentioned more lovely than *Puschkinia scillioides* and *Tritileia unijlora*, though neither of these are mentioned in it. The first is a Siberian, the second a native of Mendoza. Both are hardy, abundant bloomers, and of the most exquisite pale lilac in the one case, and in the other pale blue and white. One of the first things one fond of spring gardening, and anxious to make a little more of it than is generally done, should do is to secure a root or two of such as these, so that in a few years a good stock may be had. Both plants are now at Kew, and in most good botanic gardens. For these and such as these it would be a capital plan to make a slightly raised bed, with a few rustic stones half sunk around, and a few through the surface of the bed by way of miniature rocks. This bed should be drained, and filled to the depth of eighteen inches with fine sandy peat and loam; the sand to be silver sand if convenient. The bed should be situated in some isolated and fully exposed place, and attended to solely by its lady owner, as at present there is not one gardener in a hundred knows anything of the exquisite plants under notice, though, once acquainted with them, they will be as fond and careful of them as we

could desire. In such a bed some of the choicer kinds of alpine plants, sedums, saxifrages, sempervivums, mountain forget-me-not, vernal gentian, alpine primula, and all other choice and pretty dwarfs, might and should be mingled with such things as I have named. The alpiners generally would be presentable all the year round—as interesting at Christmas as at Midsummer. When the choice bulbs are at rest, the bed would be highly interesting from presenting the gems of the mountain flora, interspersed here and there with the brilliant magenta-coloured *Calandrinia umbellata*; while in spring the little bulbs would push up between, and illumine the bed with the loveliest of flowers.

ORNAMENTAL GRASSES.

We will next discuss plants without perfume or beauty of colour, without any of those charms that usually go to make a flower popular, but which for delicate grace and elegance are not surpassed by any plants of this world! But, reader, do not take the “ornamental grasses” usually shown at agricultural and horticultural shows by the seedsmen as a good example of the class. Indeed, they are often so ridiculously selected and arranged that I do not doubt the display has prevented many from cultivating a tribe so beautiful, and above all useful to ladies for indoor decoration. I do not know that any grass can be much less ornamental than the common cocksfoot, but you often see him tied up with the best, tied up like a broom in such a way that if he had any grace it would be literally “bundled” out of him. Why not show a dozen or score of really ornamental species in vases, the stems inserted in sand, and waving just as they do when growing? Then, again, some of the stiffest kinds are named in lists of “ornamental grasses,” and some of the very best omitted. Believing the great opportunities those plants, combined with everlastings, afford for winter embellishment of our houses, and knowing the arrangement of such to be a very pleasant recreation for ladies in the autumn months, I will give a few hints about the best kinds and their culture. They are all cheap and quite easy of culture, requiring only one particular attention, and that is to be cut at the right time *before* the plants begin to seed and waste their energies, and then laid on a shelf in a dry room to dry, which they will do in a week or two, and then be quite ready for use. The following dozen are among the very best:—*Agrostis nebulosa*, exquisitely slender and elegant when looked at raised above the eye, above which it is sometimes necessary to raise it from the stems being nearly as fine as a hair. From this cause also a healthy patch of the plant in flower looks like a little cloud lying upon the ground. You can see the dense inflorescence, but not the stems which support it, and the whole has a fairy-like aspect. *Agrostis pulchella* is not so elegant, but quite as desirable from its prettiness and distinct bushy habit. *Stipa pennata*, the well-known and elegant feather grass. *Papilatherum*, or *Milium multiflorum*, a most gracefully drooping, slender flowering grass. *Briza gracilis* and *maxima*, well-known, popular, and good, but not so good as others mentioned here less seen in cultivation, but quite as cheap as the *Brizas*.

Lagurus oratus, the soft and pretty hare's-tail grass, quite indispensable from its distinctness. *Setaria macrochaeta* and *germanica*, handsome, free-growing, and noble grasses, very useful and striking for vase decoration. *Eragrostis elegans*, second to no grass in existence for beauty when the inflorescence is springing from the ligule, or indeed at any time: it, like other grasses, may be cut with advantage in two or three stages; the first cutting will be quite distinct from the last. *Hordeum jubatum*, the most elegant of the barleys, but which must be cut in a very young state, or it will fall to pieces in drying. *Sorghum bicolor*, with a pendulous and elegant inflorescence; the pampas grass cut when in its prime, and *Bromus briziformis*, somewhat like, but larger and far prettier than a briza, but with a peculiarly elegant habit, drooping and arching in a singularly graceful manner. The seed of these may be had from most respectable seedsmen, and should be sown in the open border about the end of April, or better still in pots in a cold frame in March, and then divided and planted out about the end of April. In this way they would escape being mingled with the common grasses, the seeds of which are always plentiful in the ground. They might be planted here and there in vacancies in the mixed border, and would delightfully vary it. But to grow them specially for cutting, not an unwise plan, the best way would be to give them a little bed to themselves in the kitchen-garden, or nursery, or any such place. They would then be more under the eye, and more likely to get cut at the proper time, *i. e.*, when fresh, and young, and perfect. So much for grasses, now for the brightly-coloured and charming everlastings with which they may be intermingled in vases for the drawing-room, with such a pleasing result.

EVERLASTINGS.

Here, again, I must caution ladies against taking as an example of what may be done with everlastings the hideous ungraceful-looking sets of them to be seen in some London windows. These are chiefly made up of the flowers of the very pretty little *Gnaphalium arenarium*, a perennial which grows nicely on a sandy soil, and which is used so much in the making of *immortelles*; it is dyed in many colours, but is never prettier than in its own clear shining yellow. But with it the seedsmen stop. There may now be seen in London, bouquets of grasses and everlastings, ugly enough to deter people from having anything to do with such plants. They are, I believe, imported from the Continent. If you look for a bit of *Rhodanthe*, or *Acroclinium*, or *Waitzia*, or any of the very cream of everlastings, you don't find a bit of it; but you may readily find things like the double chrysanthemums, calliopsis, zinnias, and other annuals, that are not everlastings at all, and which are difficult to dry and no good when dried. This, perhaps, results from the continental people wishing to show what they can do in drying flowers. Now the only drying that the best everlastings want is to be cut and laid on a shelf for a few days, and they will remain perfectly beautiful till the next year's crop is fit to cut, or as much longer as you like to keep them. The best way to secure a crop is to get good seeds of the

several kinds of *Rhodanthe*, *Acroclinium* and its white variety, *Waitzia grandiflora*, and perhaps one or two others, *Helichrysum bracteatum*, *incurvum*, *macranthum*, and *atrosanguineum*, and perhaps *Xeranthemum annuum*, which is a fine border annual. Sow all except the last, which grows as free as oats, very carefully on a warm sunny border, about the last week in April or first in May; if possible in light sandy soil. But it is perhaps a surer way to start in pots, or on the bed of a spent hotbed, and then, after gradually hardening off, plant out before the plants are in the least drawn. These remarks apply chiefly to the *Rhodanthes*, which are the most delicate, but which I think are worth taking any amount of pains with. It should be carefully noted that they should be cut when young and fresh, and before the seeding process begins in the least. When I have got a nice lot of grasses and everlastings, the way I arrange them is in vases of various sizes filled with dry silver sand, allowing the grasses to droop naturally over, supporting *Waitzia grandiflora* and the *helichrysums* with bits of thin wire as the stem becomes limp after cutting; the *rhodanthes* support their heads bravely, as well as when growing, from the firm wiry nature of their stems. If we think it worth while to wire flowers that last but a day or two, we shall not begrudge it to those which last for months.

Having begun this paper with a little about the very sweet subject of spring flowers, I thought of ending it with one equally so—"Hardy Fragrant Flowers," but space forbids just now; if ever done it must be at another time. To treat adequately of ladies' flowers would require from me a chapter monthly a whole year round, and I have not hoped to do much more than open up the subject in this; confident, however, that every plant named is worthy the honour assigned it, and certain to give much pleasure to its fair cultivators.

NEW PLANTS.



UBRIETIA DELTOIDEA CAMPBELLI (*L'illustration Horticole*, t. 455).

—Brassicaceæ. This fine variety of a well-known hardy herbaceous plant was raised by Mr. Campbell, of Brighton, and is apparently a true hybrid. The habit of the plant is bushy and compact. The flowers are very freely produced; they are large, and of a fine purplish blue colour.

Here is a plant which represents a large family, all of which are of value in the garden, yet how few cultivators in the present day have any care about them. Messrs. E. G. Henderson and Son, of St. John's Wood, have lately introduced several beautiful varieties of *Aubrietias*, which surpass in beauty the other forms, but even these latter unimproved, and we might almost say unknown, are deserving the attention of the lovers of real beauty, and especially of those amongst them who do not need a plant to be rare or costly, in order to win their admiration. On a raised bank of sandy loam, fully exposed to all weathers, what beautiful things are the *Aubrietias*, and how well they associate with *Arabis albida*, *Draba azoides*, *Arenaria verna*, *Alyssum saxatile*, and the best of the saxifrages. The time may return when such borders will be seen in every good garden.

CALCEOLARIA HYSSOPIFOLIA (*Botanical Magazine*, t. 5548).—Scrophularinæ. This is a fine shrubby species from the Quitoian Andes, which has lately flowered in the fine collection of plants belonging to Andersen Henry, Esq., of Trinity,

Edinburgh. It is both interesting and beautiful, being of bushy habit, the growth wiry and rigid, the leaves linear oblong, the flowers produced in handsome corymbs; they are of the average size of the flowers in shrubby species already in cultivation, the pouch being slightly crenulated, and the colour a pale yellow, with a slight stain of orange.



CALCEOLARIA HYSSOPIFOLIA.

dark green colour. The flowers are produced in racemes of ten to twelve each; they are tubular, somewhat inflated, calyx and corolla bright rose pink, the mouth contracted, with short teeth. When in flower this is a most attractive object, and well worthy the attention of cultivators of choice subjects.

NARCISSUS JUNCIFOLIUS (*Proceedings of the Royal Horticultural Society*, v. 137).—Amaryllidaceæ. A beautiful dwarf-growing hardy bulb, from the pastures of the Pyrenees. It has neat, rush-like foliage, and comparatively large yellow flowers. It will be a good companion to the pretty *N. bulbocodium*, which is one of the neatest of the genus.

AQUILEGIA CERULEA (*Garden Oracle*, 1866).—This superb species of columbine is one among the many fine herbaceous plants introduced by Mr. Thompson, of Ipswich, and it may be truthfully described as the most beautiful hardy plant known. The flowers are peculiarly formed, having long spurs, which all point downwards, the flowers being quite erect. The colour is azure blue, slightly shaded with cream. It is a native of the Rocky Mountains.

PENTSTEMON GRANDIFOLIUS (*Proceedings of the Royal Horticultural Society*, v. 144).—Scrophulariaceæ. A fine species, with broad bluntly-ovate glaucous leaves, and very large flowers of a lilac colour. Like the last, introduced by Mr. Thompson, of Ipswich, who has contributed greatly to the enriching of the herbaceous border with novelties of high character.

PHÆNICOPHORUM SECELLARUM (*L'Illustration Horticole*, t. 433).—Phœni-

CLIANTHUS DAMPIERI, var. MARGINATA (*L'Illustration Horticole*, t. 456).—Fabaceæ. This superb variety of Dampier's "Glory Pea" has been recently introduced by Messrs. E. G. Henderson and Son, of St. John's Wood. It differs from the type in this, that instead of the almost uniform scarlet crimson, with jet black centre of the flowers of *C. Dampieri*, the variety *marginata* is pure white, with jet black centre and sharp marginal line of scarlet crimson. The painting of the flower is so precise and brilliant that it is sure to become as great a favourite as any form of *Clianthus* known.

THIBAUDIA JESSICE (*Botanical Magazine*, t. 5547).—Vacciniaceæ. Mr. James Bateman has several times exhibited at meetings of the Horticultural Society examples of this and kindred species of Vacciniaceous shrubs, which are at present scarcely at all known in cultivation. This species is believed to be a native of the Caraccas. The leaves are a span long, membranous, shortly petioled, and a fine



THIBAUDIA JESSICE.

caceæ. This noble palm has been the subject of a little passage of botanical history that has caused considerable diversion, and therefrom it takes its name of the "thief-palm." It is very distinct from all other palms in our stoves, having enormous leaves borne on stems beset with formidable spines. When young, the leaves are of a fine cinnamon colour, afterwards changing to a beautiful deep green. There are not more than half a dozen examples in Europe at present, and one of the finest of these is at the Victoria Nursery of Mr. B. S. Williams, Holloway.

BERRY-BEARING SHRUBS.

Abridgment of a Paper read before the Central Horticultural Society, Dec. 12, 1865, by SHIRLEY HIBBERD.



THE subject of this paper is suited to the season, for some of the most important berry-bearing shrubs are now in their full splendour, and are chiefly esteemed for their berries, which contribute so much to the beauty of our gardens at this the dullest time of the whole year, and are so eminently useful for decorative purposes within doors in connection with the festive season.

What are the berry-bearing shrubs in perfection *now*? The reply demands a short list of hollies, skimmias, cotoneasters, ivies, and aucubas, yet in these we have materials for effecting a complete reform in the decoration of our villa gardens, and a reform, too, at a season when it is most needed, in the dull months of October, November, and December, when ordinarily the beds and borders are empty and bare. and the garden, lately so gay with colour, presents a dreary aspect similar to that of a haunted house, or perhaps worse, for in haunted houses we see nothing to alarm us, but in our villa gardens we see so much dirt, deformity, and inappropriateness, that we ought to be alarmed if we are not. When I proposed this subject for the Society's course, I had in my mind to make remarks here on the kind of reform which I think is needed in villa gardens, and which can scarcely be effected without a plentiful use of berry-bearing shrubs. The aspects of the gardens at this moment furnish all the arguments needful for demonstrating the necessity of reform. We have been growing more and more extravagant in the display of flowers for several years past, and the bedding system reigns supreme. Shall I say one word against the imitation of great places in small gardens, and the restriction of the abilities of amateurs to the cultivation of a few subjects which are useful only during a portion of the year? Indeed I would, but the chairman would very properly call me to question, and I should learn that I had come here to speak of berry-bearing shrubs, and not of villa gardening in general, and the bedding system in particular. So I content myself with asking you to contrast the gorgeous display of July with the poverty of December. Behold, in the first instance, the splendours in which fashion delights; behold, in the second, the squalor and dirt which fashion allows. The serious part of the case is that these extremes are connected—they are the two sides of the subject. Villa gardening is like a game of see-saw—when one end of the plank is up, the other end must be down; if you employ all the ground at your disposal for bedding plants during summer, it is impossible the same ground should be occupied with ornamental subjects during winter, except at great cost and some risk; because if furnished with evergreen trees, the system of decorating in winter would necessitate the lifting of the trees in autumn, and again in spring, a routine which you know can only be partially carried out, and that, too, with very young and consequently small plants. Now I propose by the help of berry-bearing shrubs and such *other* subjects as may be found suitable, to remedy all this by means of the *plunging system*. This system has been pursued in my own garden during several consecutive years, and my beds and borders are at the present moment nearly as gay, and considerably richer, than when occupied with bedding plants in June. One of the first steps towards carrying out the plunging system is the cultivation of evergreen trees in pots; and when these are plunged in groups where formerly flowers were grown, variegated ivies and berry-bearing shrubs should be liberally employed to light them up, so that during the melancholy winter season the garden may still have some attractions to those who like out-door exercise at all seasons, and have a less depressive aspect—in fact a cheerful and inviting aspect—as seen from

the windows. I present to your notice this evening a few examples of plants grown for this purpose, and regret it is impossible for me to lay out a border in this room, so as to give full effect to the beauty of berry-bearing shrubs when judiciously intermingled with the best of the evergreens which are adapted for plunging, such as *Cedrus deodara*, *Buxus balearica* and *sempervirens*, *Grislinia littoralis*, *Cupressus Lawsoniana*, *Juniperus Virginiana*, *Pinus cembra*, *Euonymus Japonicus* and *radicans*, *Lauristinus*, etc. Surrounded as I am by practical men, I feel that I need not enlarge on this subject; the merits of the plunging system will, I am sure, be appreciated wherever it obtains a moment's consideration; and the only serious impediment to its general adoption will be this, that people are so lavish in expenditure in absurd attempts to imitate great places by means of gorgeous displays of bedding plants during the summer, that not many will be able to afford to treat their gardens as they should be treated during the winter season!

In the enumeration of genera which furnish us with berry-bearing shrubs, the HOLLY should, no doubt, have first place. I will refrain from saying a word in its praise, for if to gild refined gold, to paint the lily, to throw a perfume on the violet * * * is wasteful and ridiculous excess, so would a panegyric of the holly be in a paper addressed to practical horticulturists. Considered as berry-bearers, there is not much room for choice amongst the many hollies that are in cultivation; some of the noblest-habited, as *Shepherdhi*, *atrovirens*, *latispina*, *crasifolia*, *tortuosa*, and others, are very shy in fruiting, and it is but seldom we see them thoroughly rich in berries. There are, however, a few that are ordinarily fruitful under very various circumstances. *Ilex aquifolium*, the type of our English hollies, and the parent of hundreds of garden varieties, is certainly one of the best of our berry-bearing shrubs. The patience of this tree under adverse circumstances is remarkable. Among my earliest recollections of observation out of doors were the fine groups of *Ilex aquifolium* which thirty years ago abounded in Wanstead Forest, and grew with wonderful luxuriance under the heavy shade of oaks, alders, and beeches. I fear, by this time, many of those great groups have disappeared, for Wanstead Forest has for many years past been undergoing the process of blotting out, and we may expect very soon to hear of it being covered with genteel villas, etc., and every street called a grange, or avenue, or park. Immense quantities of holly used to be cut in Wanstead and Epping forests for the London market at Christmas time, and the growth of that district was valued for its brilliant foliage, and the abundance of its berries. As a London tree, the common green holly is of the greatest value, and the only objection that can be urged against it is that, though it usually bears abundance of berries in suburban gardens, no one ever sees them, for the simple reason that they become well blacked by soot before they get ripe, and so continue invisible amongst the sombre leafage. And this fact reminds me of an important point to be observed in the planting of gardens in districts where smoke prevails, and which I have learnt by long observation of the effects of smoke on trees and shrubs. It is this, that every colour except yellow is soon tarnished by smoke, but yellow is always least affected, and apparently keeps its character unhurt. There is, of course, as much soot deposited on a yellow flower, a yellow berry, or a yellow leaf as on those of any other colour, but these show it least, and you will observe that yellow chrysanthemums, yellow-leaved hollies, and yellow-berried hollies look better in smoky localities than chrysanthemums and hollies of any other colour. The yellow-berried hollies, *I. A. fructu aurantiaca*, and *I. A. fructu luteo*, are, therefore, invaluable for planting in the suburbs of towns. When well-berried examples of these stand side by side with trees bearing red berries, they quite outshine them, especially if there has been a long period of dry weather. After heavy rains, the red berries being well washed, recover somewhat of their pristine beauty, but, taking the winter season throughout, the yellow berries are certainly the most effective. In the country the case is different. A yellow-berried holly on a lawn, or in a shrubbery, is a most beautiful object, but if I venture to compare yellow with red on the score of individual merits, I must pronounce the red the best. A fine pyramid holly, thirty feet high, which the knife has never touched, and which no storm has injured, glittering in the winter sunshine in all its deep green varnished leaves and its myriads of glowing red berries, is a sight that warms one; it is a stimulus administered through the eyes instead of the mouth, and it goes quicker to the brain, and fills the mind with a sense of happiness. It not only warms the observer, but it warms the landscape; and its association with the most joyous festival of the year is an important element in our enjoyment of its lusty

vigour, its bonny colouring, and its independence and glorious individuality—the sentinel of the woods.

The following varieties of *Ilex aquifolium* are very prolific of berries—namely, *hybrida*, the leaves broad and green ; *ovata*, leaves oval, thick, habit compact, one of the most beautiful in every way ; *Hendersonii*, dull, dark leaves, very fine ; *senescens*, broad, smooth leaves, almost spineless, one of the best for smoky districts ; *Fisheri*, very showy, and a fast grower, leaves smooth, dark green. The smallest-leaved and the largest-leaved varieties appear to be equally shy of producing berries, though amongst them are several that for beauty of growth and foliage can scarcely be equalled by any other shrubs in our gardens. Among the variegated kinds, *recurva variegata*, *flammea angustifolia*, *flava*, *aurea myrtifolia*, *aurea pumila*, and *bicolor*, which all belong to the gold-leaved section, are invaluable both for their splendid foliage, their fine compact habits, and the abundance of their scarlet berries. Suppose we had just twelve each of these six sorts, the plants to average three feet high and three feet through, all in 12-inch pots, what sort of a display would they make if plunged in a circular bed close under the drawing-room windows ? Perhaps it might be hard to find a bed large enough to hold them, for a dozen would be enough to light up a bed fifteen feet in diameter filled with dark green shrubs of such kinds of *deodaras*, *euonymus*, tree box, etc. In the silver section, *alba picta*, *ferox argentea*, *lucida*, and *argentea latifolia* are the best both for leaves and berries. The gold-leaved kinds are, however, the most valuable in all suburban gardens ; and, indeed, the silver kinds should never be planted extensively, except in very pure air.

I shall now ask your consideration of the *COTONEASTERS* as berry-bearing shrubs. I am acquainted with eighteen species, but I believe there are more than eighteen in the country. Our old friend *C. microphylla* is undoubtedly the most valuable of the family for all ordinary purposes. Considered in connection with the plunging system, they are most unsatisfactory plants, for the best of them, as regards habit and colour, happen to be deciduous, and consequently we lose their best characters at the very moment when we require them to be in their full beauty. The truly evergreen kinds, such as *microphylla*, have berries less brilliantly coloured than the deciduous kinds, and there is not one that can be described as eminently valuable for the embellishment of the garden. However, let us make the best of them ; and what can we wish for better in a conspicuous part of a rockery than a few sprawling plants of *C. microphylla*, with its quaint, almost bramble-like growth, its dense dark green leafage, and its plenitude of dull red fruit. Grafted on the thorn at four or five feet high, it makes a very curious and effective standard, and will do well for a lawn on which *Caraganas* and other shrubs of curious rigid habit have place. Though not quite all that is desired for the plunging system, you may judge by the specimens before you, which are neat, upright bushes, similar in outline to Irish yews, that it is, at all events, useful, and the colour of its berries renders it acceptable amongst ordinary evergreens to warm large masses. The way in which the plants on the table are grown to the compact, pyramidal form which they present is simply by closely pruning back the long angular branches that are formed in the summer ; if they are not pruned, they soon become unmanageable as pot plants, as the branches shoot down below the rim of the pot, and they lose all symmetry and character. There are examples here, too, of *C. acuminata*, *C. rotundifolia*, *C. affinis*, (*frigida*), and *C. uniflora*. Of the first two it may be said that, amongst hardy shrubs bearing red berries at this season, there are very few to compare with them as to the size and abundance and brilliant colour of the berries ; but they lose all their leaves with the frost, and, like many other good species, are greatly reduced in value thereby. They, however, make useful pot plants to mix with groups for the sake of their berries only, and, like *microphylla*, require close pruning in, on account of their strong, irregular growth. In the shrubbery, *C. frigida* forms a glorious bush. *C. acuminata* is a most valuable kind, and, were it evergreen, would be invaluable. On the table are small plants raised from seed sown in the winter of 1863 ; they now average eighteen inches to two feet high, and are well covered with berries. Plants of this species may be raised by thousands by this simple method, and when planted round the boundaries of *rhododendron* clumps, and in the front lines of shrubberies, they have a most beautiful appearance all winter, as the berries remain bright until the new growth begins in spring. For terrace gardens and for lawns, where trees of formal aspect are admissible, standards of this species are well worth having. I have placed on the table a standard five feet high, with a

neat head three feet over, which, you will observe, has already shed its leaves. The abundance of the large orange-red berries of this species compensate, in a great measure, for its being deciduous; but we really want an evergreen *Cotoneaster* with berries such as these, and if the explorers cannot find anywhere in the world a species, the gardeners must set to work and raise a hybrid.

Allow me next to make a few remarks on a most important genus of berry-bearing shrubs—namely, the *SKIMMIAS*. These are most interesting and beautiful shrubs—the very models of plants for plunging, and for any decorative purpose in winter; the only fault they have is a habit of growing very slowly; but they make amends for this by producing such prodigious crops of berries, that they are sometimes all berries; the leaves, and stems, and roots appear to be accidents, and they may at any time remind us of Albert Smith's description of a bouquet with a young lady attached to it. All the species of *Skimmias* are of neat, compact, and handsome growth; they produce abundance of berries, and the terminal umbels of flowers appear while the berries of the previous year's growth still remain as fresh and bright as in autumn. In the specimens before you there are plenty of berries, and also clusters of flower buds, showing where the next bunches of berries will occur. The best species is *S. oblata*, which produces large berries of a brilliant scarlet colour. We may hope for yet more species of *Skimmia* from Japan; but with *oblata* and *Japonica* alone wonders might be accomplished in the reformation of villa gardens, and the systems of decoration that prevail amongst them. No one has ever yet seen belts and clumps and marginal lines of berry-bearing shrubs in villa gardens; yet how easily might they be grown, and how delightfully would they warm up our garden scenes, and perhaps take away something of the sting of reproach that foreigners indulge in when they speak of the winter climate of this glorious country. Our gardens are so inky in winter, that we deserve the sarcasms that foreigners level at us. We ought to show them that, though we cannot change a leaden sky to a golden aurora, or compel the sun to shine when the atmosphere consists of pea-soup, we can, nevertheless, cover the ground with green leaves and ruddy berries, and present countenances as cheerful as our own hollies, and in our domestic embellishments display a taste as sound as our commercial prosperity, which is like heart of oak.

Let us now briefly consider the claims of the *Aucuba* as a berry-bearing shrub. I take it for granted that the gentlemen who are here to-night are familiar with the little passage of botanical history of which the *Aucuba* is the subject. But it would be to render this paper intentionally incomplete were I to omit all mention of the matter. Suffice it, then, to say that the *Aucuba Japonica* was introduced to this country in 1783, and was for some time after grown in stoves and greenhouses. Its perfect adaptability to our climate was not discovered until it had been several years in cultivation, and then in quite an accidental way. In due time it became known that the *Aucuba* is one of those shrubs which Linnæus termed *diœcious*, each individual plant being of one sex, and producing either male or female flowers only as the case might be. The plant or plants originally introduced provided us with the female form only, and for lack of pollen from the male plant the *Aucubas* of our gardens have never produced fruit. It may be worth remarking, however, that at various times female *Aucubas* have produced the outward semblance of fruit in our gardens—as, for example in the winter of 1862, many of these trees were observed to have upon them a few red berries, which were quite abortive, being destitute of seeds through not having been fecundated. The case was simply analogous to the cucumbers without seed, and grapes without stones, and pods without peas, which are occasionally produced in gardens, and it served only to indicate how eminently desirable it was that the male plant should be obtained in order to render our established trees fertile. This was accomplished by Mr. Fortune, who discovered the male *Aucuba* in a garden near Yeddo, in Japan, and sent home specimens in Wardian cases, and Mr. Standish was the first to exhibit it, an honour of no small value. The plant was first exhibited at one of the spring shows of the Royal Horticultural Society in the year 1863, and by this time thousands have been sold, and there have been many exhibitions of *Aucubas* covered with berries through the application to their flowers of the pollen obtained from the male plant.

The most useful species for outdoor purposes is no doubt *Japonica*, the several varieties of which are all good. If a selection is needed, I advise my friends to secure first the varieties known as *femina latifolia* which has green leaves and a

very noble habit of growth; *fœmina macrophylla*, undoubtedly the finest of all, the leaves being of great size and handsome form, deeply notched, and a rich deep green colour; *mascula elegans*, a finely variegated form of the male, the leaves richly blotched with gold; and *mascula elegantissima*, another fine form of the male, the leaves of which are striped and spotted with gold. It is but right in this connection to mention the name of Mr. William Bull, of Kings Road, Chelsea, for to him the public are indebted for the best exhibitions of *aucubas*, showing their various characters of leaf and berry, of any that have been attempted since the plant acquired its present importance, and became productive of berries on British soil. *Aucuba Himalaica* is a beautiful Indian species, with dark green leaves and berries, which are partially coloured coral-red and yellowish-green. It is a grand conservatory shrub, and may hereafter figure in our own shrubberies—if not everywhere, at least in some of the most sheltered districts of Britain. It is not an agreeable task, perhaps, to have to introduce a skeleton at a banquet, but at this feast of berries I feel constrained to obtrude a melancholy consideration. It is this: that probably, after all we have hoped and all we have said, the *aucuba* will never acquire any great importance as a berry-bearing shrub in our gardens; because though it may produce berries in plenty, they will perhaps be so concealed by the leaves as to be scarcely visible, unless we lie on our backs to survey the wondrous scene. I will not venture to say that the *aucubas* that have been exhibited with berries have been prepared for exhibition by a skilful removal of some of their leaves, so as to bring the berries into view conspicuously; in truth, I never thought at the right moment of examining one with the object of determining that point, but the thought has occurred to me with some force, and if you bear in mind that it is the habit of the tree to throw up the new growth in the midst of the flowers, when these latter are in perfection, I daresay you will share with me the fear I entertain.

English and American *Thorns* are well known to be as grand in their appearance when covered with berries as when they bear their blushing honours luxurious with perfume in the merry month of May. I do not intend to enlarge upon the merits of the *Cratægus* generally as a bearer of berries, because the subject would so properly and necessarily lead to the consideration of ornamental trees and shrubs, without regard to berries. But I would take advantage of the mention of the genus to remark, first, that the species of *Cratægus* are eminently adapted for the embellishment of suburban gardens; to press the matter closer, I will venture to say that they are amongst the best of all the town trees we have. The plane for grandeur, and the thorn for beauty, and every London garden or square may have superb furniture. These, at least, are able any day to bring the country into the town, whatever else may fail; and those who want to make sure of some success in planting in towns, should plant plenty of them to begin with. The best collection of thorns I can refer you to as always accessible, and except in the depth of winter always worth seeing, is to be found in Victoria Park, where, under the skilful management and constant care of Mr. Prestoe, good trees attain to respectable proportions, and show their true characters, though so near the great metropolis. At Battersea Park there are interesting trees without number, but I have not noticed so many fine examples of *Cratægus* there as at the other park I have named. In quitting this part of the subject, I would call your attention to a remarkable specimen of *Cratægus crus-galli*, the Cockspur thorn, with a great tabular head, which stands beside the lake near Llanover Gate, in Victoria Park. Near the same spot are equally characteristic examples of other species. In case any of our friends should need a hint as to the species it is desirable to plant in every garden, I would name the common hawthorn, *C. oxyantha*, and its yellow-berried varieties *aurea* and *aurantiaca*, the double-flowering dark-red *punicus flore pleno*, and the single crimson-flowered *rosea superba*. The American *C. coccinea*, *C. crus-galli*, *C. flava* with pear-shaped yellow berries, and *C. heterophylla* with red berries, are all fine.

For a last word, I call your attention to the well-known evergreen thorn *C. pyracantha* as one of the best of all known berry-bearing shrubs to grow in pots for the plunging system. I think you will admit that it is something new to fruit this fine shrub in seven-inch pots, the plants two feet high and branching freely, every branch loaded with bunches of its showy orange-red fruit. It is one of the easiest of things to manage in this way, and the doing of it may be described in a word. Layer the shoots into pots, cut them away when well rooted, and prune a little to give them shape. They will bear berries the next season. The specimens

before you have had two clear seasons' growing since they were layered, and I have no doubt they will next year be so covered with fruit as to be worthy of being likened to vegetable furnaces, for the berries are the most fiery of all berries, and usually they are produced in tremendous bunches.

THE GARDEN GUIDE FOR JANUARY.

FLOWERS OF THE MONTH.—*Greenhouse*: *Deutzia gracilis*, Tree carnations, *Camellias*, *Hovea Manglesii*, *Andersonia Sprengelioides*, *Correa speciosa*, *Correa pulchella*, *Correa platycentra*, *Cytisus racemosus*, *Cyclamens*, Chinese primulas, *Epacris rubra*, *Epacris maxima*, *Daphne rubra*, *Jasminum ligustrifolium*, *Jasminum nudiflorum*.—*Garden*: *Tussilago fragrans*, *Primula vulgaris*, *Hepatica triloba*, *Bellis perennis*, *Heliborus niger*, *Cheiranthus alpinus*, *Stellaris holostea*, *Eranthis hyemalis*.—*Frame*: Snowdrops, *Crocuses*, *Tulips*, *Hyacinths*, Russian and Neapolitan Violets.—*Ericas*: *blanda*, *colorans*, *scabriuscula*, *sebana*, *regerminans*, *pulchella*, *aspera*, *cafra*, *denticulata*, *vernix*, *vestita*, *tenella*, *decora*, *bandoniana*, *carinata*, *exsurgens*, *flava*, *lambertiana*, *formosa*, *longipedunculata*, *imbricata*, *ignescens*, *mammosa*, *ovalifolia*, *mutabilis*.—*Orchids*: *Angræcum superbum*, *Angræcum virens*, *Dendrobium speciosum*, *Burlingtonia amœna*, *Dendrobium chrysotoxum*, *Barkeria elegans*, *Cymbidium elegans*, *Cælogyne Gardneriana*, *Cælogyne speciosa*, *Limatodes rosea*, *Bletia campanulata*, *Calanthe vestita*, *Cypripedium insigne*.

FRUITS IN SEASON.—*Apples*: *Alfriston*, K., *Adams's Pearmain*, D., *Beauty of Kent*, K., *Bedfordshire Foundling*, K., *Bess Pool*, D., *Blenheim Orange*, K., *Brad-dick's Nonpareil*, D., *White Calville*, K., *Cockle Pippin*, D., *Cornish Gilliflower*, D., *Cox's Orange Pippin*, D., *Dutch Mignonne*, *Golden Pippin*, *New Hawthornden*, K., *Hughes's Golden Pippin*, D., *Lamb Abbey Pearmain*, D., *Lemon pippin*, K., *Mannington's Pearmain*, D., *Newtown Pippin*, D., *Nonpareil*, D., *Northern Spy*, D., *Ord's*, D., *Ribston pippin*, D., *Sam Young*, D., *Stamford pippin*, D., *Winter Pearmain*, K.

Grapes—*Barbarossa*, *Black Hamburg*, *Black St. Peter's*, *Calabrian Raisin*, *Kempsey Alicante*, *Lady Downe's seedling*, *Trentham Black*.

Pears.—*Alexandre Bivort*, *Alex. Lambre*, *Angelique de Bordeaux*, *Beurré d'Arenberg*, *Beurré Duhaume*, *Beurré Langelier*, *Beurré Sterckman's*, *Bezi Vaet*, *Broompark*, *Chaumontel*, *Colmar*, *Conseiller de la Cour*, *Doyenné Goubault*, *Forelle*, *General Todleben*, *Huyshe's Bergamot*, *Ne plus Menris*, *Winter Nelis*, *Zephirin Gregoire*.

GARDEN WORK.

Kitchen Garden.—So much depends on the weather and the situation of the Garden, that suggestions for this month's work must be received *cum grano salis*. On warm borders, where a little shelter can be given in case of frost, sow small breadths of two-bladed onion, green collard, York cabbage, horn carrot, hardy lettuce and mustard. Peas and beans may be sown in open quarters. All forcing operations must be watched with diligence, in order to insure proper successions.

Fruit Garden.—Pruning and nailing may be done when there is no frost. This is a good time to lay down a coating of fat manure among bush fruits, to be dug in between them during frost.

Flower Garden demands attention chiefly to keep it clean; standard roses may be planted, and flower-beds may be deeply dug, manured, and left rough.

Greenhouse to be kept as airy as possible, without giving a chill to any delicate subjects. Clean glass is a great help now to the well-doing of the plants. Hard-wooded plants must never be subjected to sudden extremes of temperature; soft-wooded plants bear heat much better, but a great heat is never required, and is always injurious. Do not allow any plants to become dust dry at the root, even during frosty weather, give water when required, and maintain a genial temperature of 50° to 60° by day, and 40° by night.

Stove.—A good time now to repot many plants that require it, and to make a general inspection of the collection. Put gloxinias and achimenes in pans and start them.

. A full calendar of operations will not be attempted this year. In the *FLORAL WORLD* for the year 1863 a very copious calendar was given, reference to which will be found serviceable both for reminders and directions. In the *GARDEN ORACLE* for 1866 will be found a complete calendar of operations, carefully arranged to suit as nearly as possible all the climates of Britain.

NEWS OF THE MONTH.

THE INTERNATIONAL HORTICULTURAL EXHIBITION AND BOTANICAL CONGRESS, to be held at Kensington, and which will be the great event of 1866, has the best possible prospects of success, for subscriptions flow in rapidly, and English exhibitors are preparing to do their utmost for the honour of English horticulture, knowing that the foreigners invited will do their utmost too. The exhibition will be opened on the 22nd of May, and will remain open till the 25th. M. Alphonse de Candolle, the greatest of living botanists, will preside at the Botanical Congress. There is to be a grand banquet in connection with the event, which it is expected will take place in the Guildhall of the City of London.

THE ROYAL HORTICULTURAL SOCIETY'S INTERNATIONAL FRUIT SHOW, December 9th to 16th, was an event of some interest; but as compared with former shows, and the present requirements of horticulture, it was certainly far below the standard of excellence which the Society ought to maintain. Mr. Lewis Solomons and Messrs. Webber, both of Covent Garden, contributed magnificent collections of selected fruits, and, as far as mere display was concerned, these were the only contributions of the least importance in the exhibition. In the whole of the show there were but seven bunches of grapes; and the great bulk of the subjects were collections of apples from Nova Scotia, the samples much injured by the voyage, and unattractive specimens of vegetables and fruits from India. Messrs. Barr and Sugden exhibited 1000 specimens of ornamental and edible gourds, which created considerable interest. Mr. Ingram, gardener to Her Majesty, at Frogmore, sent a very good collection of English fruits. It is much to be regretted that a society enjoying so many advantages, and making so many high pretensions, should be able to accomplish so little for the advancement of science and the gratification of its supporters.

SMITHFIELD CLUB CATTLE SHOW.—The exhibition of fat cattle at the Agricultural Hall was a great success, considering under what peculiar circumstances of gloom and fear it was held. Though in some classes of cattle there was a considerable falling off, there were, taking the show through, as many animals shown as on any former occasion, and amongst them were examples of symmetry and substance such as have never been surpassed. The exhibitors of implements and agricultural produce appeared to have exerted themselves to compensate for any possible disappointment caused in other departments by the cattle plague, and the result was a brilliant display in the galleries. The finest display of roots was undoubtedly that on the stand of Messrs. Sutton and Son, of Reading, who piled up mangolds, turnips, beets, and carrots of enormous proportions and fine quality in such profusion as has been rarely seen before. Roots of 30 lb. each appeared to be common, and many of the samples were as remarkable for beauty as for size. Messrs. Carter and Co. had a fine collection of roots, seeds, and vegetables, selected to represent fairly the several classes of produce which it is possible to exhibit at this season. On this stand was a large collection of samples of potatoes grown by Mr. Shirley Hibberd, of Stoke Newington. The collection comprised about seventy distinct varieties. Amongst them were some that were mere curiosities; others, again, were as attractive for their symmetry and size as for their known usefulness. Messrs. Gibbs, of Halfmoon Street, Piccadilly, exhibited grand examples of cattle feeding gourds, with seeds and miscellaneous roots. At nearly all the seedsman's stands were collections of dried grasses, which were badly selected as to sorts, and most miserably put up. It seems to be the rule at exhibitions of this kind, first, to collect as many ugly species of grasses as possible, and then to spread them out in fanciful designs; as if no one could see the true character of a grass unless the flower spikes were spread out in the form of a fan, or a wheel, or a star, or something else equally stiff and incongruous. Exhibitions of really beautiful grasses put up in light plumes, without the help of gum, pasteboard, and pressure, might teach people that some grasses are worth growing; but exhibitions such as are usually offered must have the effect of inspiring a belief that ornamental grasses are the ugliest and most ignominious things on the face of the earth.

TO CORRESPONDENTS.

* * This Number of the *FLORAL WORLD* has to be printed before Christmas, and is got up with some haste. It is therefore requested that those correspondents whose letters are not answered will kindly wait till next month, when the Editor hopes to be enabled to give them every needful attention.

ROSES.—*J. B.*—You need not ask what sort of wood to use in propagating new roses by budding, for you will not get any stout wood until you have had them some time. But in any and every case the best buds are those from plump wood of the season, the buds not at all started, the bark still green and parting readily from the wood. It matters not when or how the shoots begun to grow from which the buds are to be taken; the only rule of any consequence is that the shield should peel well, and that the bud should not have begun to grow. It is quite time you began to propagate roses on their own roots. Every amateur rosarian should practise the art, and secure thereby better roses than can be had for love or money by any other process.

VARIEGATED PLANTS.—*R. B.*—It is quite certain that liberal cultivation will drive the variegation out of some plants, but not out of all. At the meeting of the Central Horticultural Society, on the occasion of the reading of the paper on Berry Bearing Shrubs, we exhibited samples of gold-leaved hollies, from which the variegation had been completely removed by the simple process of planting them in rich loam which had been liberally manured. In proof of the transformation having been accomplished in one season, there were on the samples shown leaves of 1864 richly coloured with golden variegation, and leaves of 1865 as green as grass. We have many trees in this state, and they belong to a series of subjects that for a long time past we have been amusing ourselves by experimenting upon. Good mellow loam of a hazel colour, and with plenty of fibre from rotted turf in it, will grow most variegated plants to a fine vigorous condition, without detriment to the variegation; but animal manures tend to destroy the variegation.

PÆONIES.—*R. Simson.*—The herbaceous kinds are magnificent when in bloom, but they do not last long enough to be suitable for groups in prominent positions in the flower garden. A collection in a large bed or border presents a magnificent spectacle when in bloom, the flowers of the best kinds being of prodigious size and exquisitely coloured. Mr. Salter's display of pæonies annually attracts many amateurs who take an interest in plants of this kind.

FERNERY.—*P. B.*—Your plan will do very well, and you need not fear having too much light, because it is so easily shaded out in summer, and in winter ferns are as glad of all the light they can get as other plants are. If the trees were on the south side it would be an advantage to the house to afford shade, but they will in no way affect the well-doing of the plants where they are. You do not say what is to be the arrangement inside; we would suggest a rockery in the centre, and narrow borders faced with burrs all round. You may stock this house with as many evergreen ferns as it will hold, all of choice kinds, and all capable of doing well without the aid of artificial heat. You shall have a list of suitable ferns next month. You ask "if a conservatory forming the main entrance to a house is capable of being managed successfully?" It all depends on the nature of the structure. Some "conservatories" are sepulchres for plants. The chief requisites are plenty of light and conveniences for ventilation; if yours possesses these, it may be "managed successfully."

FRUITING JASMINE.—Will you kindly tell me whether it is usual for the common white jasmine to bear fruit? An old tree belonging to a friend of mine has this year done so for the first time, and we cannot hear that any other jasmine in this neighbourhood has ever borne fruit. The berries are in shape, size, and colour, like black currants, and are quite hard. Would it be any use to sow them? *JULIA COLSON.* Swanage, Dorsetshire, Dec. 16. [It is a most unusual thing, but not more extraordinary than many occurrences in English gardens in 1865. The great heat and long continuance of the summer brought to maturity many plants which rarely attain such a condition in this climate. No doubt the berries are fertilized, and may be sown with a prospect of germinating. Sow them now on a sheltered border, and cover with two inches of fine earth. Probably in May next a few plants may appear, and others from time to time during the summer. Some may remain dormant till 1867, so the bed must not be dug, but be merely kept free from weeds, and the plants removed from it as they become large enough.]

THE FLORAL WORLD

AND

GARDEN GUIDE.

FEBRUARY, 1866.

GRAPES FOR THE MILLION.—NO. I.



THAT grapes should be esteemed above all other fruits, and yet be less grown in this country than any other fruits, is one of the anomalies of modern horticulture. The grape is reputed the most healthy of fruits; it is certainly the most elegant; some may consider it the most delicious, but as tastes differ, it is not worth while to press that point. Now, taking a thousand gardens at random in the suburbs of any great town, in how many shall we see grapes grown well and grown in plenty? In great gardens there are great vineries, and the managers thereof are not in need of help from horticultural journals. But in small gardens the grape vine is not so fully appreciated as it might be—not so extensively or skilfully grown as it might be; and it may be seasonable and reasonable at this dull time of year to offer a few remarks on methods of grape culture eminently adapted to the wants and circumstances of those whose gardens are not of princely dimensions, and whose purses are not so well filled as was that of Midas. It is not my intention, however, to write an essay on the cultivation of the grape vine on the ordinary model; I shall not now attempt to describe how to propagate, how to plant, how to prune, and all the rest of it, but rather endeavour to indicate ways and means not generally thought of by amateur gardeners, and perhaps offer a few encouragements to the appropriation of them. I shall deal only with the most simple modes that occur to my mind, and I shall place a sufficiency of facts before the reader to make this paper in a certain way complete in itself.

WALL GRAPES.

As to generalities, it may be right first to remark that the grape vine is rarely injured by the winters in this climate, but the summers are not hot enough to ripen all the varieties out of doors. A certain few kinds, however, ripen their fruit well in good seasons in this country, and the most certain method of growing grapes where glass is not employed is on a good wall facing the south. The farther north we proceed, the less and less chance is there of good returns from out-door vines; but it may be stated in general terms that

south walls in sheltered gardens in all parts of Britain will give good returns in good seasons; and in the warmer parts of the island, as for example, the counties south of Leicestershire, and especially those in the extreme south and south-west, good walls may be planted with grape vines with a fair prospect of success. A good wall may be rendered of little service by a bad border; and a bad wall, that is to say, one less warm and sheltered than might be desirable, may be improved by a good border. As rules are easily remembered, I offer a rule here—*the colder the position, the poorer must the soil be*. A moderately fertile sandy loam will be found the best for the growth of grape vines out of doors. Rich soils and fat manures are not at all desirable for the growth of out-door grapes; and in a cold, wet summer, the vines on the poorest and driest borders will do better than those on moist, well-manured borders. It must not be supposed, however, that the grape vine can live upon nothing; indeed, it would be a folly to plant grape vines on a worn-out, sour, or pasty loam, on which nothing else could be grown satisfactorily. Should it be necessary to prepare a border for vines, two feet depth of prepared earth will be sufficient, and this should rest on a dry bottom; if on a stratum of stones or bricks all the better; but this is not needful. It is needful, however, that the border should be perfectly drained, either naturally or artificially; if water stagnates upon it all the winter long, the vines will become afflicted with disease, and to expect grapes from them will be absurd. Turfy loam, sharp sand, half-inch bones, and clean building rubbish are the best of all materials wherewith to make a border for out-door vines. If the mixture consists of one half loam, and the remaining half equal parts of the other materials, it will answer admirably. If the loam is not turfy or fibrous, or is suspected of being poor, some good manure may be added; say in the same proportion as the sand, bones, and building rubbish. In advising the use of "clean" building rubbish, I mean such as consists of nodules of brick, old mortar, flint, chalk, and plaster. If laths, tin kettles, old iron, and scraps of sheet lead were mixed with it, I would not have it for any horticultural purpose, except it might be for the foundation of a walk. Generally speaking, however, the common soil of the garden can be made suitable for vines at a small expenditure of labour and money.

One reason why wall grapes are not much thought of, is that, generally speaking, the worst kind of grapes that can be discovered are grown upon them. The following will produce plenty of fine fruit, and ripen it well, unless the season is very cold and wet, on any good wall, except in places that are absolutely bleak and notoriously unsuitable:—

GRAPES FOR SOUTH AND WEST WALLS.

Chasselas Vibert, large, golden amber, juicy and rich.

Royal Muscadine, large, greyish green or pale amber, juicy and sweet, a first-class grape to grow for light wines.

Prolific Sweetwater, large, pale amber, flesh juicy and sweet. This far surpasses the old Sweetwater and the Dutch Sweetwater; it is early, and very fruitful.

Cambridge Botanic Garden, large, oval, brownish black, with fine bluish bloom, flesh firm, sweet, and highly flavoured. Here is a grape equal to Black Prince, and which is often mistaken for that fine grape, and which may be ripened on a wall perfectly in ordinary seasons. This variety was found on a south wall in Cambridge Botanic Garden, where, except in very cold and wet seasons, it produced large crops, and ripened its fruit early in the season. Its origin is quite unknown.

Esperione, large, round, jet black, covered with blue bloom, flesh very juicy, sweet, and rich, bears abundantly, and generally considered the best of all wall grapes. It is, at all events, a vigorous grower and an excellent dessert grape, and would alone redeem wall grapes from the contempt in which they are held, if people would destroy their Sweetwaters and July clusters and plant *Esperiones* instead.

White Romain, small oval, rich amber, transparent, very sweet and rich, bears abundantly.

Miller's Burgundy, an excellent out-door black grape, which may be distinguished from all other varieties by the hoariness of its leaves. It is one of the best black grapes for the wine-press, and ripens perfectly in English gardens.

I shall remain content with recommending these seven sorts only. I can name five-and-twenty varieties for walls, for any readers who want to plant extensively, and have as much variety as possible. But my advice to a friend would be, have two or three vines of each of these sorts first, and add others as you get used to the cultivation of them, and can judge for yourself whether to plant only varieties that are very hardy, or to try a few that are rather tender in constitution. If the position of the garden is sheltered, and the wall faces south, and the soil is sandy and dry, and the border gets its full share of sun-heat, I should recommend the planting of the following

GRAPES FOR VERY FAVOURABLE SOUTH WALLS.

Chasselas Musqué, round, greenish white, or pale amber, flesh firm, rich, sugary; a most delicious grape; in fact, one of the finest dessert grapes known. My esteemed friend, C. Roach Smith, Esq., the eminent antiquary, of Strood, in Kent, grows this grape to perfection on a warm south wall. I tasted some of the produce on the 15th of September last; the bunches were then just ripening, and the forwardest berries were delicious.

Early Smyrna Frontignan, medium size, round, bright amber, very juicy and delicious. This is a very early grape, and always ripens on a good wall, but only on a good wall does it prove fruitful and of good quality.

Muscat St. Laurent, small, oval, pale amber, juicy, with a high muscat flavour. It is early and reliable. Where *Chasselas Musqué* does not come to perfection, this may be tried in place of it.

Muscat Lierval, medium, round, deep purple, with light bloom, flesh rich and sugary, with trace of muscat flavour. An excellent early grape, but rather shy in setting.

Black Hamburg needs no description. It is the most useful

variety known, and on a thorough good wall, and in a thorough good border, it will pay well as an out-door grape.

Now let us turn to another method of growing grapes; and I shall, for a few moments, address myself to the thousands who dwell in suburban residences, which considerate builders have furnished with little glass boxes, yclept "conservatories." I need not explain at length what I mean, except to say that the conservatories I now refer to are such as are generally too small to be of any use as plant-houses, and while being like ovens in summer, and ice-wells in winter, are usually degraded into lumber rooms, and are chiefly conservative of spiders, dolls, and spare pieces of carpet. Everywhere in the suburbs of London there are thousands of these "conservatories;" and if the owners did but know exactly what is the best use to put them to, grapes would be grown in such plenty, that they would become a common article of diet with the middle classes. These little conservatories, and all larger conservatories that resemble them in being lifted up above the ground level, and exposed to extremes of temperature, make first-rate graperies. For a few shillings in many instances, and for one or two pounds in any case, one of these conservatories could be furnished with a vine that would produce, after three years, grapes worth, on an average, five to ten pounds per annum; and instead of the house looking forlorn at all seasons, and being pronounced a nuisance, as is the case with thousands such, it would be rendered beautiful by the noble leafage, and still more noble bunches of the vine; the green leaves and the purple grapes would redeem the character of the conservatory; and on summer evenings it might prove to be the best of places for ladies to gossip and work, or for the other sex to smoke, and debate—say the affairs of the country. To convert one of these elevated conservatories into a vinery, it is necessary first to prepare the border nearest to it, if it needs preparing. Take care it is not made over-rich with manure; a moderate quantity may, perhaps, be good. Next plant a *strong* Black Hamburg vine in such a position that it may be conveniently trained up the wall in one clean rod—mind, *only one*—and at last be taken into the house, through an aperture made by knocking a brick out. Then, in its after-growth, let it be trained a foot from the glass on wires fixed for the purpose, and prune it on the spur system, and in due time you will reap, if you faint not. My neighbour, Mr. Oubridge, a spirited and talented nurseryman, in Stoke Newington, took me, one day last summer, into one of these little conservatories, which he manages for a customer, and I saw what a Black Hamburg could do in a glass box, which is an oven in summer and an ice-well in winter. The place measured ten feet in length, and six feet six inches in width; it had brick walls on each side, a glass roof and a glass front. The vine was trained in the usual way; it covered seventy square feet, and there were no less than eighty bunches, averaging 1 lb. each, and on the 9th of September they were just beginning to colour. If eighty bunches of Black Hamburgs, when ripe, are not worth a five-pound note, then this number of the FLORAL WORLD is not worth a farthing, and my name is not SHIRLEY HIBBERD.

THE SNOW AND ITS TEACHINGS.



ON the 11th of January we had in these parts (south-east corner of Middlesex) a great fall of snow. Probably there was as great a fall elsewhere, but all I really know about the matter is what I saw. And I wish I could describe what I saw; for this idea occurred to me—if it is important to study the characters of trees, with a view to make our parks and gardens beautiful, it is important, too, to study how they look when covered with snow. In the particular case of this fall of snow, an immense quantity of a most light and feathery kind came down in the course of a few hours, and wherever it could effect a lodgment, there it lay, deep and pure, like a most blessed burden, which the trees felt and yielded to most willingly. When I drew aside the curtain of my bed-room window, and looked out upon the gardens and fields on that memorable Thursday morning, the scene was so grand and surprising, so pure and full of suggestion, both to heart and head; for I thought, at one and the same moment, of the overpowering evidence of Almighty wisdom which was set forth in the boundless breadth of virgin snow, and of the needs of my poor neighbours who were not well furnished with fuel, and perhaps were in need of food also. When I began to analyze the scene, I was struck with the extraordinary faithfulness of its resemblance to pictures I have seen of winter scenes in Canada. There are some fine spruces to the right of my prospect, and these were so laden with snow, that their character was quite changed. Their arms hung down in regular oblique lines, closely approaching to the perpendicular, the place of each indicated by the sharp black line above, which was the huge swan's-down sort of covering, as if the trees had clothed themselves with a prodigality of white garments, and were staggering under the load. Very different were the aspects of oaks in the mid distance, where the garden blends with the park—on the apple-trees on the left of the foreground, where the lawn blends with the orchard. The gnarled, angular outlines of these trees were well preserved, and they presented a peculiar combination of the grotesque and the sublime. Next the lilacs in the flower borders caught my eye; their appearance was most pleasing, and I was really astonished at the exquisite grace the snow had conferred upon them, for the weight had separated their stiff, crowded heads, and gently bent every branch outward, so that every tree had the appearance of a fountain all of foam, and the slight motion the wind gave to their bent and loaded branches assisted the delusion, and made the fountains play. Every tree appeared to have a new character; and, in truth, the snow had re-made the world, and for the time it seemed to be quite as new and surprising a spectacle as I might anticipate beholding, if I could be wafted to another planet.

But the grandest tree, to my thinking, was the *Araucaria imbricata*. There are several fine specimens on the lawn, and they are conspicuous features, in our view, from the drawing-room windows. These were all loaded like the rest, and the weight was evidently considerable. The effect was to bear every branch down in a regular

curve, so that each formed as nearly as possible a half circle. These semicircles sprang regularly from the trunk, from the ground line to the summit of each tree, diminishing in size regularly, and presenting such a stiff, formal, artistic, and, in fact, *artificial* appearance as I never before beheld in any production so completely natural as was this. The trees looked to be gigantic productions in metal, as if masterpieces of the mystical and mighty forges we read of in German fable, as hid away somewhere in the recesses of the Hartz or the Brocken. I likened them to colossal works in iron or bronze, which had been left out because too large to be got within any building, and which had been swaddled up in furs from northern latitudes to prevent their corrosion by the weather.

Having admired the araucarias, and the spruces, and the deodaras, which last were by no means remarkable for beauty in their snowy dress, for the snow hung about them in ugly patches, I now felt a strange sense of some deficiency, and I actually cried out at last, "Where are my pretty young birches? where are my little arbor vitas, that stood five feet high, all green and beautiful but yesterday? Where my standard American willows? Ah! yes, and where the great aucubas that formed the rear-line of the flower-border? Where are a thousand other things that I ought to see some token of amidst the snow?" I might have cried long enough; for Tom had gone off to make ready for a day's shooting, and I had offended him by declaring it infamously cruel and wicked to take birds at a disadvantage during the snow; and as for Arabella, who generally answers all my questions, she turned away from the window, called the wintry scene "horrid," and went to join Aunt Hellaby in sleepy wool-work. So as the walks had all been swept, I put on my goloshes, and a shawl over my head, and went to see for myself. I found the gardener looking for the trees with as much concern as myself. They were not destroyed or swept away; they were simply bent down to the ground with the weight of snow, and the heads of birches and American willows were actually frozen to the ground, so that to get them up again seemed to me a matter of impossibility. But the gardener assured me they would be none the worse for the prostration, and he purposed to leave them alone for the present. The outlines of all such trees as these were perceptible enough, for their stems arched over the snow, like hoops put across a flower-bed when it is intended to cover something over with mats. All the shrubs of pliant nature were laid out on the ground. Arbor vitas and aucubas, when discovered, looked like heaps of linen left carelessly here and there; their branches were separated from the very root, and pressed down lengthwise on the earth under a weight of snow which appeared quite sufficient to crush them for ever. But as the gardener again and again assured me that when spring came they would look none the worse for having been so humbled, I took comfort, and admired the wonders around me without any misgivings.

I do not know whether this hasty and imperfect sketch of a scene which I could not attempt to describe will be of any use or interest to lovers of gardens, but I feel sure I can draw from the

occasion one practical lesson. I have remarked that our young birch trees and American willows, and other trees of slender habit, were beat down, so that their heads were frozen to the ground. Now, in a gap in the front of a rockery where I have my own pretty collection of Alpine plants, stands one slender-stemmed tree, which I have always prized for its beauty. It is rather scarce, and the name of it is *Halimodendron argenteum*, the Siberian salt tree. That tree could not bend to the ground like the rest, for it was tied up rather stiffly to a stout iron stake. Not being allowed to bend, *it broke*, and the fine head it had was actually torn to pieces, the principal branches breaking away at the point where they joined the stem. If that tree had been without a stake, it would have been unhurt; but it was kept too rigid, and it is ruined. I went indoors with a heavy heart at having lost one of my favourite trees; and I thought, as I once again mused before the whitened and wonderful landscape, how true it is that proud natures feel adversity most, and are crushed by a weight of afflictions which would only bend more humble souls, and how, therefore, humility is not only seemly and Christian, but preservative, and may, perhaps, keep the heart and the head from feeling the full force of a shock which to a proud nature would bring despair and death.

SARAH.

A FEW MORE WORDS ABOUT THE FUCHSIA.

BY MR. H. CANNELL, FUCHSIA NURSERY, STATION STREET, WOOLWICH.



SEE in the FLORAL WORLD of last month a very interesting paper on this subject by Mr. Prior, whom I have often heard of as one of our clever amateurs, and a very experienced and truthful writer on roses. I like that paper on the fuchsia; it is excellent as an amateur's view on the subject, and I hope it will tend to revive the favour with which the fuchsia used to be regarded, and which has declined somewhat of late years. In my own experiences as a grower and exhibitor before I entered into business, I always considered the fuchsia the most elegant and most easily managed of all the good favourites of the greenhouse; and among the many prizes I have taken at the great exhibitions, I think I value most of all those which my fuchsias have obtained for me. Well, having read Mr. Prior's paper, I said, That is an amateur's view of the question; I will send the worthy Editor a nurseryman's view of the subject. I do not pretend that my paper can be as interesting as Mr. Prior's, but I do hope that, as it will, as it were, give to the readers of the FLORAL WORLD both sides of the question—for I suppose it has two sides—the fuchsia may be thereby brought into public notice in the fairest way possible; and the newest information on the subject may tend to advance the flower in public estimation, and make it, as it deserves to be, the favourite with all classes.

HOW TO GROW THE FUCHSIA FOR EXHIBITION.

Young plants should be procured any time from Christmas to August; if so late as August, keep them growing up to November, but they must be sufficiently strong to endure going thoroughly to rest for a month or so, as circumstances may require, by being placed in a cool airy situation, and almost dry at the root, not powdery, but just sufficient to keep life in them. Then about January, to be introduced into a little heat, about fifty-five degrees. As soon as the buds begin to appear, shake all soil from the roots, and re-pot them into the smaller-sized pots, always using new ones if you have them; if old ones, you should be particular that they are perfectly clean inside. Be careful to preserve the roots on small plants; old ones can be slightly shortened. Previously prepare the soil, by getting it into some warm dry place, so that the soil is the same temperature as the house,

Be particular about the drainage of the pot. Place a few small pieces of potsherd at the bottom of the pots, and then a thin layer of moss over them, to keep the soil separate: if this is not strictly attended to, the drainage will become choked and the plants sickly; and if so, they very rarely recover themselves all through the season.

Fuchsias are like radishes—the quicker they are grown the better. Let the plants be potted carefully, placing the roots round the pots; jar the pot on the bench, to settle the soil in between the roots; press the soil down moderately firm, leaving sufficient space for water on the top. After potting is finished, plunge the pots into some kind of bottom-heat—such as tan or hops—where the plant will have a slight bottom-heat of about seventy-five degrees, till they get thoroughly into growth, then to be gradually removed. Keep them well syringed, and the top heat arrange about fifty-five degrees at night, and about sixty-five in the day-time. Be careful of damp, and by no means admit cold draughts nor use cold water; if so, the leaves will become brown, and the vigour of the plant will be gone.

Now we will suppose cuttings to have struck somewhere about the beginning of January, and all potted off and doing well; this, too, about the third week in February. Next thing to consider about will be the stopping. One of the main objects in fuchsia growing is to get the plants into a good shape when young; and this requires some bit of consideration. There are some sorts very difficult to get up sufficiently high for specimens, but if they are once got up, they will be sure to get bushy at the bottom afterwards, because they are naturally dwarf; and others, that are strong growers, require a good deal of stopping when they are young, such as "Prince Alfred" or "Exhibition." They must have their tops taken out when about six inches high, and four to six side-branches tied out, by placing a piece of bass round the rim of the pot, and the branches fastened to it, and be allowed to grow about five inches long before a centre shoot is again permitted to grow up; and when this centre shoot has grown about six to ten inches more, to be stopped again, to give the side-branches strength, and to give a better bottom to the plant. And this kind of stopping to be continued till the plant is so thick that you cannot see through it; and

by no means allow the top of the plant to outgrow the bottom, which can easily be prevented by the simple process of taking out the centre of each shoot with a sharp-pointed knife. As the pots fill with roots, so the plants must be shifted into larger ones. Be very particular that they never become pot-bound, as that will be sure to throw them into blooming. They must receive their last shift at least three months before they are required to be in bloom, and the stopping discontinued nine weeks before they are required for exhibition.

Be very careful to keep a regular temperature, for no plant is more liable to injury from sudden changes than the fuchsia. Let the temperature range, after the middle of March, five degrees higher, and as the season advances, five degrees more, with plenty of moisture in the house; always syringe twice a day, and in hot weather very frequently, and keep plenty of water on the floors and staging of the house when the ventilators are open. Give all the air possible in fine weather. As soon as the sun begins to give much heat, see that the blinds are in good order, for they are most extensively used in growing fuchsias whenever the sun shines hot; but the very minute the sun is off the plants let the blinds be drawn up, for they require all the light possible.

Young plants, treated the first season as I have described, will make fine exhibition plants the second. Some sorts will do even the third, but very seldom do they make creditable specimens after the second season.

Now we will suppose that it wants about thirteen weeks to the show day, and we will give the plants their last shift into twelve-inch pots. The soil is in good condition, the pots clean and well-drained, with broken pots about an inch thick, and a layer of moss over them; add about an inch of soil pressed down rather firmly, and all is ready for the plants to be turned into the blooming pots. Loop the branches up on one side, to prevent breaking them; be sure the ball of the plant is thoroughly moist; take all the drainage from the bottom of the plant, and place it carefully into the new pot, fill up with soil all round, without injuring the roots. Keep the house moist and closed for a few days, and the sun from them; be sure not to over-water them till they get hold of the new soil; in about three weeks they will be growing fast. Commence stopping, for the last, by taking a few points out each day for a week.

Now prepare the liquid manure tub. Get some horse droppings fresh from the stable—say about half a bushel of a barrel of rain water—mixed well together with half a peck of soot. When clear, let each plant have a small quantity, say about a pint, every three days, to be increased every week. Be sure not to give it too strong, if so it will take all the flowers off. Apply it in the after part of the day, with the regular water.

Give the plants every encouragement to grow. Regulate all the branches that may require it; let the plant have a good strong stake in the centre, and the shoots well fastened to it. The bloom-buds will soon begin to appear; pick off all the forward ones, till they appear regular all over the plant.

On the afternoon before the show, get plenty of small stakes

and thin paper and Cuba bass ready. Put the stakes in the soil; gather about three or four bunches of bloom together, put the paper round them, and fasten the paper to the top of the stakes. All the blooms must be done in this way, to make them travel well; and if they are carefully tied, and three large nails driven into the bottom of the van round the bottom of each pot, they will travel any distance without damage. When they arrive at the show they will look funny objects; but as the paper is taken off, they will look as fresh as they did before they started. Place them on the stage; the tallest at the back, and very much raised, so they will show themselves if they are three deep; if only two deep, of course they will not require so much. This is a very exciting time, and every flower must be made the most of. Let each pot be slightly pitched forward, and every defective leaf and bloom be picked off, and the names plainly written, and all is now ready for the First Prize, which is one of the most gratifying feelings any lover of flowers can experience. As soon as the show closes, let them be carefully papered up again, and they will be little or none the worse for being shown to the public.

HOW FUCHSIAS OUGHT TO BE TO GET THE FIRST PRIZE.

Abundance of large blooms regular all over the plant, and the blooms of a perfect shape, and each plant must have its blooms distinct in colour. The foliage must be perfectly green, and free from dirt and insects. The plants must have health and vigour, so they can throw out branches, and give them a graceful and elegant appearance, and to be as near the shape of a good specimen of a *Deodara* as possible, with only one stake in the centre. Let every plant be of the same shape, and about the same size, so that the plants may have the appearance of having come out of one mould. The plants must be perfectly round, so that one side is as good as another. Let the blooms hang about four inches from the floor all round the pot, so that the pot is quite half hidden by the plant.

Plants in twelve-inch pots, when well grown, ought to be five to six feet high, and four to five feet through. My plants in 1864 were quite in accordance with the rules I have given, and I took the two first prizes, £10, from the Royal Botanic Gardens, Regent's Park, and the three first prizes from the Royal Horticultural Society, £8. In eight years I have taken about £80 in prizes.

VARIEGATED BEGONIAS.



WE know of no good reason why the finest varieties of variegated begonias and caladiums should not be grown in every garden where there is a moderate amount of glass and the exercise of a little ordinary skill; and it is a matter of surprise that they are rarely met with except in what may be designated first class establishments. As a rule, amateurs shrink from their culture, apparently under the impres-

sion that they demand an immense amount of practical knowledge and appliances out of their reach, whereas, they may be associated in small collections with many other plants with which amateurs are generally familiar. For the information of all classes interested in gardening, I purpose offering a few practical observations on the management of these beautiful plants. Among the species, the tuberous kinds are much more hardy than the fibrous rooted. The latter will go through the winter safely if never lower in temperature than 48° to 55°. The former will bear a temperature as low as 35°, though it is not advisable to try them so severely, unless the plants are old and carefully prepared for severe treatment. All the greenhouse species, as *Barkeri*, *bulbifera*, etc., endure to remain dormant for a considerable time, during which they must be kept nearly dry, but never dust dry, and must be started gently before being repotted. In the culture of the variegated varieties which have now become so fashionable, a few precautions are necessary. The object in all cases is to obtain really fine plants. No one accustomed to the results of good culture could tolerate miserable specimens of begonias; and to get them to a fine size, perfect colouring, and robust health, good stove heat is essential. Who, amongst the modern race of gardeners, can forget the first appearance of *Begonia Rex*, which was sent out by M. Linden, of Brussels. It created more astonishment than any new subject of the present century, and was the proper precursor of the extraordinary race of variegated varieties which have followed it—some of them actually surpassing it in beauty, which, at the time of its first appearance, seemed beyond probability and possibility. So rapidly may these plants be propagated that the latest varieties are comparatively cheap, and the older ones are dirt cheap. So numerous are they, that at the first glance at a full list, an intending purchaser of stock would be perplexed beyond reason to make a selection, and, therefore, a few notes on the merits of the best, will, we feel assured, prove valuable. And first, as to the culture, which is simple enough.

CULTURE OF VARIEGATED BEGONIAS.

A light, rich soil suits them all alike, none of them are peculiar in that respect. The soil we use is a mixture of fresh turfy peat chopped to the size of eggs, leaf-mould thoroughly rotted and well frosted, fibrous loam and sharp sand, equal parts. If the peat is poor in fibre, we add a half part of old cow-dung, but, with first rate peat and loam, we prefer to do without the dung, except it be for top-dressing plants intended for large specimens. Supposing a set of plants to be taken in hand at this time of year, or between September and January, we should simply keep them alive, and if pressed for room—and who is not?—we should lay them on their sides under the stage, or otherwise keep them warm and dry in an intermediate house. About the middle of February they should be shaken out of their pots, all the old soil removed, but with care not to injure roots or tubers, and repotted, with the crown of the plant level with the surface of the soil. They should be potted firm, and it would be well to sift the soil, so as to remove from it all the fine

stuff, for they grow best in lumpy, elastic compost, the materials of which are well incorporated; the sifting should be done before adding the sand. After repotting, they should be placed in a moist brisk heat, and there is nothing to equal for this purpose a sweet hot-bed. Wanting this, a tan-bed or pine-pit will do, but the plunging material must be kept very moist, and the plants have but little water until growth has fairly commenced. Any excess of water at this stage would cause them to rot at the collar; but when in full growth they should have plenty. The cultivator will have to guard against giving too much air, admitting too much light, and above all against wetting the leaves. A few waterings overhead will soon spoil the finest lot of begonias ever raised, and those that escape utter ruin will be denuded of their exquisite beauty. In furnishing a conservatory with them, therefore, take care not to admit any cold draughts, and see that the shading is in its place before removing the plants from the stove. Many a disappointment has occurred through neglect of these precautions.

PROPAGATION.

It is nothing new now, to talk about propagating plants from leaves. Prepare a good sweet, moist hot-bed; take off a complete leaf, and lay it on the bed, and it will root in a few days. Or to do the work in a more wholesale way, incise the leaf across each of the principal veins, and it will at once produce a number of young plants, which are to be potted in thumb pots, as soon as fairly rooted in rather fine turfy peat and sand only. Some of them, as the one here figured, *B. dædalea*, may be increased by cutting the leaves in small pieces, and pressing the cut edge of each piece gently on the surface of the bed. In propagating-houses we generally see begonia leaves at work under bell-glasses, and at a tremendous temperature. There is no need of either; a sweet dung-bed in full play will cause the formation of roots almost immediately; and there is no need of bell-glasses, unless the bed is exposed to draughts of cold air, a supposition almost needless. Where a sweet hot-bed is not at hand for leaf propagation, it is advisable to insert them in pots. Choose for the purpose leaves half grown, cut off the leaf with a sharp knife close to the stem; keep it shaded for a short while, but so that the cut end will dry before planting it. Prepare five-inch pots with half drainage, and the rest sandy peat with an inch of clean sand on the top. Insert the leaves close to the side of the pot, and if they fall over towards the centre, place a short stick there to support them. Water liberally, and place at once in a close moist heat. If the air is not moist, they must be covered with bell-glasses; they must be shaded from sun, and will soon form plants.

BEGONIAS OUT OF DOORS.

One of the most interesting advances of the bedding system is the adoption of begonias, caladiums, and cannas, for grand tropical-looking beds. *B. Rex* was the first tried for this purpose, and the effect was such that the idea was soon extended to other similarly bold-foliaged plants. The French gardeners have done many things

in this way that we scarcely dare attempt, and we shall confine ourselves here to what has been and may be done in the best climates of Britain. A large bed of *Begonia Rex*, edged with a smaller leaved sort, will, in a good season, present an appearance not to be surpassed with any other class of foliage in out-door masses. During the past summer we have tried many varieties, and generally speaking, with most satisfactory results. They grow with great vigour after the end of June, and are far less particular about soil than when in pots; in fact, any good soil suits them, but the better if enriched with liberal dressings of leaf-mould. In 1857 we had similar success, but in 1860 scarcely any stove plant grew satisfactorily in beds near London, but in the succeeding years to the present time every well-conducted experiment of this kind has been completely successful. We generally know by the middle of June whether we may venture with such subjects, and that is quite early enough to put them out, so as to have them properly hardened for the purpose. The idea is especially worthy of the attention of gardeners who have accumulated stocks of old plants, as these are the best for the purpose, and may be bedded, allowed to grow in full luxuriance all the summer, and be left in the ground for the frost to finish them. Messrs. Lane, of Berkhamstead, have done wonders with bedded begonias; so at Shrubland Park Mr. Taylor uses them largely. The best beds in the Paris garden of Baron Rothschild, for several seasons past, have been *B. Rex* edged with *Caladium argyrites*, the most lovely plant imaginable for an edging to large-leaved foliage plants. *B. Nebulosa*, *Grandis*, *Regina*, *Rollisonii*, *Griffithii*, *Amabilis*, *Argentea*, *Grandis*, *Prince Trobetskoi*, and *Queen Victoria*, are the varieties of which we can speak most favourably, from the trial of them in our own borders. But we fully believe that the variegated kinds may be selected for the purpose with regard to size and colour only, without reference to comparative hardiness, just as we select geraniums, and give ourselves no trouble as to their relative degrees of tenderness. In a bad season, like that of 1860, no good will come of the undertaking, but in average seasons the result will be satisfactory in all sheltered places, and in good seasons, such as that of 1861 or 1865, it will be successful in the highest degree. Where beds of begonias are not wanted, a few may be used on banks and among groups of large-leaved plants with admirable effect.

SELECT ZONATE BEGONIAS.

There are about sixty varieties of nearly equal merit, differing considerably in their markings, and in the relative sizes of the leaves. From these we select the few that follow as the best, and therefore desirable as additions to collections, or as those which should be first secured in forming a collection; the first group are those of zonate form, of which *Rex* may be considered the type.

Amabilis.—Dwarf, neat; central part of leaf bright green, beyond which a zone of silver grey, and a border of green.

Madame Allwardt.—A fine bold variety, resembling *Rex*, but with a broader silvered surface; the deep green of the central part radiates in even lines along the course of the veins, so as to form an

irregular star; the zone of silver grey is vandyked on both edges, and is nearly twice as broad as the green margin, which is blotched and spotted with grey.

Regina.—Like *Amabilis*, but larger; very distinct, and altogether a gem.

Madame Wagner.—Of moderate size; dark green centre; forming a tapering-rayed star, which is surrounded with a broad silvery zone, and a narrow broken green edge; a most beautiful variety.

Rex.—The parent of most of the varieties of the zonate section; and though surpassed by a few of its progeny, it is still a grand plant, and indispensable wherever begonias are grown. The leaves are large; deep green in the centre, surrounded by a vandyked zone of silvery grey.

Rex Leopardina resembles *Madame Allwardt*; it is exquisitely beautiful, but not indispensable.

Queen of England.—One of the few that surpass *Rex*. The leaves are large and boldly marked; reddish olive-green centre, the colour breaking out into broadish rays; beyond this is a silvery-grey zone, margin dark green, dotted with bright silver, and covered with reddish hairs.

Nebulosa.—Leaves greyish green; centre a dull reddish-green, forming a star; border of dull green dotted with greyish-green; the whole of the upper surface is suffused with red, very distinct and beautiful.

Rollisonii.—Leaves large, dark satiny green, with small central star of deep red-stained green; border of medium width of the same purple-tinged deep green, marked with a few satiny-green spots; fine and distinct.

Royleana.—Below medium size; leaves glossy above, downy beneath, deep olive-green in the centre, with zone of bright green, and on the outside a narrow broken border of olive-green; a first-class sort and matches with *Griffithii*.

Roi Leopold.—This is distinct in many respects; it has a tall, erect red stem, and large leaves supported by red stalks, which are shaggy with red hairs. The mature leaves are marked with a reddish central star margined with red; they are also red beneath. The young leaves are so closely beset with red hairs that they have the appearance of rich crimson velvet; there is nothing in cultivation to beat this variety.

SELECT VITTATE BEGONIAS.

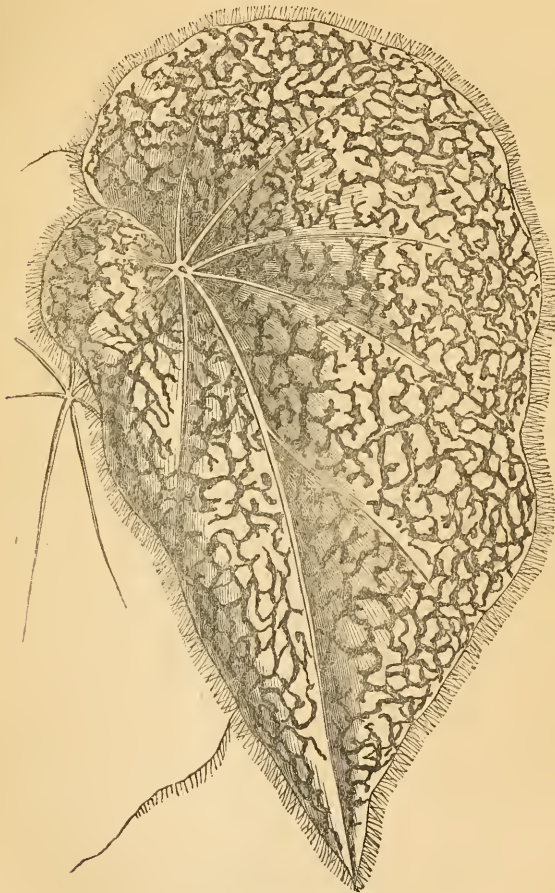
Vittata.—Leaves dark velvety green; the spaces between the veins marked with narrow, elongated bars of silvery grey, the markings being broken at the edges; the under surface red.

Xanthina Reichenheimii.—Leaves medium size, red beneath; veins bordered with green, and the spaces between them form radiating bars of silvery green, breaking into dots at the edge; one of the best.

Splendida argentea.—Leaves large, greyish, suffused with dull red, having bright green narrow lines radiating from the base along the course of the veins; distinct and showy.

Thwaitesii.—Dark green purple stained leaves, marked with blotches of greenish silvery grey; leaves purple behind. Very beautiful.

Dædalea.—Medium size, leaves rich green, deepening to a bottle green on one side of the mid-rib, and mottled all over with dark

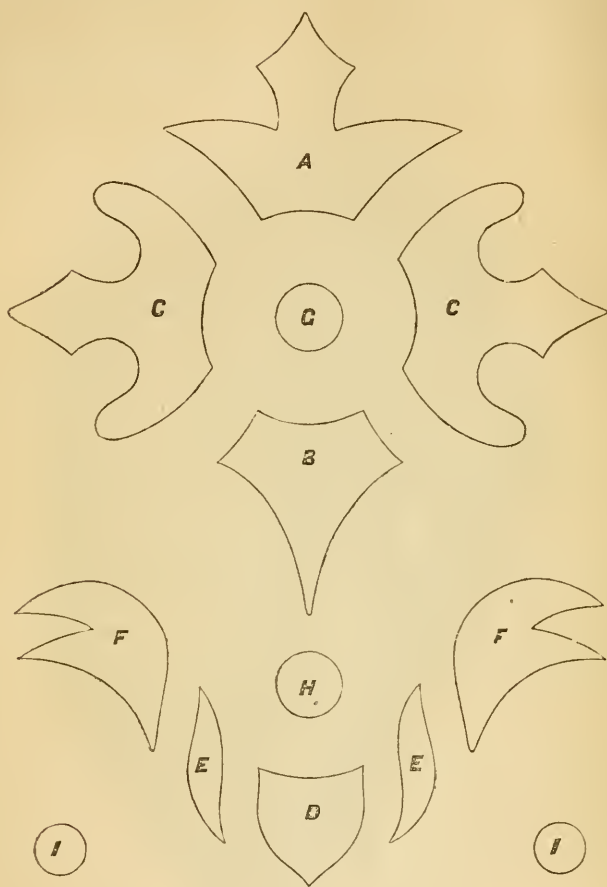


BEGONIA DÆDALEA.

chocolate-brown reticulations, which, in full grown leaves, becomes nearly black; young leaves lively carmine, leaves half grown retain a crimson tint on their margins, but in the full grown leaves the only trace of the same colour is the fringe of reddish marginal hairs.

Brixton.

W. B. B.



HOUSE

SCALE, ONE FOOT TO AN INCH.

FORMS OF FLOWER-BEDS, AND THE ART OF PLANTING THEM.

BY MR. HOWLETT.



IF we may judge from the specimens often met with in small gardens, the art of forming pretty groups, or individual beds of tasteful character, is very little understood by amateur practitioners who lay out their own gardens. There seems to be a general impression among such persons that each individual bed must be the representation of some geometrical figure or object, as hearts, diamonds, stars, butterflies, etc.; but that such arrangements are not the best I shall endeavour to show by a series of diagrams illustrating the manner of forming groups of beds suitable to various objects and situations. And as the season is not yet so far advanced but that those who feel any misgivings as to the arrangement of their flower gardens being entirely to their satisfaction, or beyond the power of invidious criticism, may yet make an attempt at improvement. Plan No. 1 is a group of beds for summer bedding plants to be cut out in a grass lawn. Supposing masses of shrubs, or beds for herbaceous plants to occupy positions on either side, perhaps for the coarse-growing species and varieties of the latter there is no better arrangement than a modification of that adopted by our forefathers—viz., that of planting them with a proportion of dwarf and choice flowering shrubs, in beds of considerable size, at a proportionate distance from the house. What a glorious chance for bringing under notice such things as the Spireas, Hibiscus, Deutzias, Mezercons, Loniceras, etc., amongst shrubs; and such of our old herbaceous things, as Phloxes, Delphiniums, Iris, Rockets, Pæonies, etc.; to say nothing of the host of biennials, as Silenes, Campanulas, Dianthus, Antirrhinums, Stocks, etc., as well as a host of tall and showy annuals, the mere thought of which carries me back to my boyhood, when every inch of a garden was invested with an interest for which now I search in vain. In that day, to look over a garden was the work of hours, whilst now-a-days we can see such places as Holkham, South Kensington, etc., in almost as many minutes.

But I am digressing from my subject, and shall run the risk of being understood as expressing myself as entirely favourable to the heterogeneous jumble that occurred in places where everything that came to hand found one common receptacle, and produced almost as great a monotony as is the case now-a-days where bedding plants are injudiciously used. For instance, I would plant deciduous flowering shrubs, of very moderate growth only, with herbaceous plants, or plants of intermediate habit, known as “under-shrubs;” but as I am now engaged with flower-bed shapes more especially suited to summer bedding plants, I must leave the subject of mixed beds and borders for future papers.

In summer bedding the system of planting which obtains favour, and also offers the means of getting the greatest variety of flowers

into a limited space, is that of edging the beds with a different plant to that which fills the body of the bed. For instance, if *a*, in the accompanying plan, is planted with white verberna Snowflake, having a broad edging of Purple King; *b*, of Mangles' Variegated geranium, edged with Blue Lobelia; *c c*, Punch geranium, edged with Flower of the Day; *d*, Crimson Unique geranium, edged with Dandy; *e*, geranium Madame Barré; *f*, Blue Lobelia, pointed with *Cerastium tomentosum*, as far as indicated by the dots *g*; in the centre a tall specimen of Amy Hogg or Rose Rendatler, or some other nosegay geranium, surrounded with Christine; *h*, *Calceolaria aurea floribunda*, or Mrs. Pollock geranium; *i i*, may be stone or rustic vases, or some other such arrangement, according to the fancy of the planter, or the plants in stock. To vary this from year to year will be no difficult matter. It is a good rule to keep the strong and glittering colours in the outside beds.

THE BEST VARIETIES OF GARDEN POTATOES.



WHEN potatoes are grown in fields for market or for cattle feeding on a farm, the most productive kinds may be selected without much respect to those higher qualities of colour and flavour which a few varieties possess; but there can be no excuse for the devotion of space in a garden to any second class potato, for there are good sorts enough to please the most fastidious; yet strange to say, several quite second rate sorts are in tolerably good repute for garden purposes in some parts of the country. How absurd, for example, it is for a gardener to plant such sorts as Red Regent, Paterson's Regent, and others that are simply productive, and have not one other quality to recommend them, when the very best may be had with as little trouble as the worst. The most desirable qualities in a potato are—uniformity of growth, producing plenty of medium-sized tubers rather than some very large and many very small; fitness for keeping; the flesh white as snow, and breaking into a fine mealy powder when well cooked; the flavour agreeable. There are not so many as might be supposed, on a casual inspection of a list, that possess these desirable qualities, and to grow a large collection, as is done by the writer of this, is to make sure of an immense quantity of rubbish. It is, however, not well to trust to two or three sorts only; whoever has to furnish supplies for the year round should grow six sorts at least. Should the disease break out it may affect some sorts only, and others may escape; hence where there are some half dozen good sorts grown, the stock of some may remain unhurt while others are perhaps swept away altogether. As to potato disease, there can be no doubt it is generated by some check occurring to the plant at the time when the *tubers are ripening*. I have explained my views at length on this subject in the "Gardener's Magazine," and will be content now merely to give my opinion in a word, in order that there may be founded upon it something practical. It will be remembered that on the 8th of August, 1865, there was a great change from hot bright

weather to cold and wet. Potatoes that were then fully ripe in the ground, as for example all the Ash-leaved race, escaped without injury, but varieties of which the tubers were fully grown and beginning to ripen, were most extensively and disastrously affected with disease. Others again that were *growing*—that, in fact, were, owing to having been planted late, still forming their tubers—were, like those ripened off, quite unhurt. Eight years ago the FLORAL WORLD proposed to all potato growers to select early sorts, to plant early, to take up early, and all the experiences acquired since that time go to confirm the doctrine; as the disease is caused by excessive humidity, with a low temperature occurring when the tubers are ripening, the early harvesting of the crop is the best safeguard against losses in this case.

These points are touched upon in order that, in selecting sorts, we may have an eye to the avoidance, if possible, of loss by disease. Let me then select one potato which grows well, is very productive, very early, very white, and a delicious flavour, and which is usually ripe before those autumnal rains occur which usher in the commencement of potato murrain; in a word, let me tell you which I consider the best variety of potato known for garden culture: it is *Wheeler's Milky White*. It is tolerably early, but not a first early; it is handsome; forms a most elegant dish, it keeps well. At the moment of writing this, when nearly all my collection of varieties are sprouting freely, "*Milky White*" has not begun to grow at all. The next best for quality and earliness is *Rivers's Royal Ashleaf*, which is a first early, and like all the race to which it belongs has yellow flesh, a fact which in my opinion renders this class of second-rate value, though they are first-rate in every other respect. All the Ash-leaved varieties are good, but I select this particular one as the best, which it certainly is. My next selection would be *Mona's Pride*, which I have never seen diseased, and which is a handsome, productive, finely-flavoured potato. Next in importance I should place *Flour Ball*, a most elegant potato when properly cooked, keeps remarkably well, is very productive, and makes very few chats, which are a nuisance unless there are pigs to eat them. For late crops and to keep in store till an advanced period of the next season, *Queen of Flukes* and *Webb's Imperial* cannot be surpassed. Thus we have half a dozen varieties, all of them tolerably safe against disease, all fruitful on the ground, and first-rate on the table. I would add one more, and then rearrange them in the order of their ripening and to make a list of seven sorts, thus—

1. *Early Walnut-leaf*; 2. *Rivers's Royal Ash-leaf*; 3. *Mona's Pride*; 4. *Wheeler's Milky White*; 5. *Flour Ball*; 6. *Webb's Imperial*; 7. *Queen of the Flukes*.

There are several other varieties of first-class excellence, and it may be well to name a few, as in different parts of the country it may not be possible to get all that we recommend. Take then from the earliest the following:—*Sutton's Early Racehorse*, *Myatt's Ash-leaf*, and *Hudson's Nonsuch*, and you have three first-class varieties. From the second earlies select *Prince of Wales Kidney*, *Gloucestershire Kidney*, *Daintree's Early*, and *Early Oxford*, and again, there are

four very fine sorts for use till the turn of the year. From the later kinds take the true *Fluke*, *Wellington*, and *Skerry Blue*, and with these stop, unless you know of certain other kinds that suit your soil and climate so well, that you have no need to change your list.

I omit many fine varieties, because experience tells me they are not now trustworthy. For example, if disease breaks out now, *Lapstone* is pretty sure to take it, and *York Regent* has undergone some change, so that of late years it seldom cooks well, the report from the kitchen being that the potatoes *will melt*. *Early Shaw* is very productive, and a fine table potato, but it has so often been caught by the cold weather at the time of ripening, of late years, that I cannot place it in the first list. Some other favourites I could name that I object to, because they have yellow flesh or are not so generally good as kinds already named. The best time to plant potatoes is autumn: if they are put seven inches deep, the winter frost never injures them, and they grow with vigour as soon as the spring frosts are past, and give better results than by planting in spring. S. H.

THE RIGHT USE OF ANNUAL FLOWERS.



IMMENSE quantities of the seeds of annuals are sold every spring, principally to the possessors of suburban gardens. The more showy kinds are prized for the brightness and profusion of their flowers, and the very brief space of time required from the date of sowing the seeds to the production of an abundant bloom. Their rapid development is one of their greatest excellencies; but it is counterbalanced by their rapid decline, which is the chief defect of the majority. But another reason of their extensive culture is their cheapness, and the very few requisites necessary to the production of a display of colour. But looking at the capabilities of annuals, and the modes in which they are generally used, we must characterize the treatment of them as in general very unsatisfactory. They are sown too thick, they rarely have a properly-prepared soil, and they are grouped and disposed in ways that are rarely artistic. In matters of taste there must be perfect freedom, and every grower of annuals has a right to dispose of them in any way that he or she pleases; but we wish to be useful, and as annuals are adapted for much higher uses than they are usually appropriated to, we offer a few words of advice at a season when almost every amateur gardener is busy in selecting and sowing his favourite kinds.

Generally speaking, the greater the variety used in a garden, the less pleasing will be their effect. Half-a-dozen well-selected sorts will produce a richer and more harmonious, as well as more manageable picture. We have seen on a broad herbaceous border, alternate clumps of *Escholtzia crocea* and *Clarkia pulchella*—the clumps two feet across and four feet apart—and while the bloom lasted, and the flowers were fresh, nothing could be more effective: the contrasts were rich and satisfactory, and the broad masses of repeated colour gave a distinct character to what was otherwise a mixed collection.

When the plants in these clumps began to get seedy, they were at once cleared off the ground, and replaced with purple verbenas and dwarf calceolarias in clumps, and the effect was again charming.

The best of all ways to use annuals is in large masses of distinct colours, to have no half-tints or mixtures, and to have very few kinds. If they do not last the season out, it is an easy matter to remove them, and plant again, because, during May and June, almost any kind of bedding-plants may be propagated in quantity with very little trouble, a few hand-lights or a frame being quite sufficient. But to follow annuals, the best things are annuals again. By the time that Virginian Stock, *Nemophila*, and other early-blooming kinds are over, balsams, and asters, and stocks may be raised in quantities to plant out in their places, and these will last in bloom till frost makes an end of them. But in whatever way they may be used, we recommend those who merely wish for gay colours, and have no idea of making collections of plants for botanical purposes, to grow very few, and let those few be the best. The following is a selection arranged in colours; there is not one entered but is worth a place in a duke's garden, and they are all so cheap, that the poorest cottager may, by their means, have a grand flower-show entirely of his own.

WHITE.—*White Candytuft*: this is truly splendid in large masses; thin to four inches apart. *Nemophila maculata*: this is a delicate-looking thing, not very showy, but quite a gem in its way. *Phlox Drummondii alba*: this is to be sown on a hotbed, or in a pan in a warm window. *Portulacca alba*: a dwarf succulent; sow in a mixture of loam, sand, and old mortar, equal parts; place in a frame or window, and plant out on dry sunny banks. *Saponaria calabrica alba*: a neat dwarf, profuse-flowering annual, very hardy, and grows in any soil. *Cynoglossum linifolium* (Venus's navel-wort): an old-fashioned and silvery-leaved white-flowered annual, grows in any soil or situation, three to four inches apart. *Virginia Stock*: not much prized, but very beautiful while it lasts, and useful to occupy places that are to be filled with later-blooming plants.

PINK AND ROSE.—*Saponaria calabrica*: the same as above described, but with rosy pink flowers. *Silene armeria*: true magenta colour, the plant very neat, and the flowers produced abundantly. *Centranthus macrosiphon*: thin to five or six inches apart. *Clarkia rosea*. *Eucharidium grandiflorum*: this will bloom late unless sown in heat. *Gilia tricolor rosea*: dwarf and pretty. *Godetia rosea alba*: grows eighteen inches high, and should be thinned to six inches apart. *Rosy branching Larkspur*: grows two feet high, thin to six inches apart. *Oxalis rosea*: a lovely annual for pots or borders; the flowers close during rain. *Viscaria oculata*: grows a foot high, and must be thinned to seven or eight inches apart.

CRIMSON AND PURPLE.—*Iberis Kermesina*: this is a splendid crimson candytuft; there is also a purple candytuft. When obtained true, these are the most uniform and effective hardy annuals ever grown. Sown early in a rich soil, and thinned in good time to six inches apart, they make splendid beds, and may be removed in

good time to follow with fuchsias or variegated geraniums from spring cuttings. Very few seedsmen can supply these new and beautiful varieties, and unless the purchaser is careful in obtaining them, the result may be washy lilac flowers instead of rich masses of glowing colour. *Clarkia pulchella*: thin to six inches apart when in the seed leaf. *Indian pink*: this needs a rich soil and sunny position.

BLUE.—*Nemophila insignis*: blooms early and is soon over. *Venus's Looking-glass* (*Campanula speculum*): this is equal in its way to the purple and crimson candytufts, and its dense masses of purple blue flowers are unequalled. *Ipomea tricolor cœrulea*: this always turns its flowers to the sun, and has the best effect in beds and borders on the north sides of windows. If planted to the south of windows the flowers will be almost hidden by the leaves. *Kaulfussia amelloides*: similar in growth to *Nemophila*, and a truly beautiful annual. *Lupinus angustifolia*: there are several fine Lupins; if you grow all you can get, there will be no waste of ground, they are so beautiful.

YELLOW.—*Oenothera Veitchii*: dwarf and neat. *Leptosiphon aureus*: a most beautiful dwarf free-blooming plant. *Escholtzia crocea*: the best for clumps. *Escholtzia tenuifolia*: very beautiful where a miniature plant is required, the primrose blossoms are very pretty. *Lupinus luteus*: pretty and sweet-scented, but of very brief duration. *Salpiglossis sulphurea splendens*.

For mixed borders annuals of taller growth may be used, such as *pæony-flowered Poppy*, *Calliopsis*, *Lupinus mutabilis*, *African marigold*, *Chrysanthemum Burrigeanum*, etc.

AN OLD FRIEND WITH A NEW FACE.

On receiving the January number of the FLORAL WORLD, our first impression was that the Editor had kindly presented his subscribers with a Christmas number—a very common practice just now, but which, by the way, is generally paid for. On closer inspection, however, we discovered we were in error, and that our new number was only “an old friend with a new face;” in other words, the new series of the FLORAL WORLD, price *Sixpence*. Now we are not going to make a fuss about the Sixpence, although we have laid a little stress upon the word; we were always of opinion that the magazine was worth more than *Fourpence*, its former price, and considering our old friend has become older and wiser and considerably larger, we will not quarrel with him for the sake of twopence per month, although meat is very dear and eggs only four for sixpence. Nevertheless, there are people who have a great objection to have an old price altered, especially when *raised*, and they cannot at once reconcile themselves to the extra tax, but when it is apparent the thing is done for the best, and that we have our money's worth, and that we are not taking in a “Shilling Library” at *eighteenpence* a volume, or occupying front seats at a Penny Reading, price *sixpence* each, we can forgive the Editor the shock he has given us, by the infliction of an extra twopence a month without any warning. The magazine in its new form is an improvement, and promises well, and we have no hesitation in saying that we have hitherto gained more practical information from it than any other work of the kind. The apology the Editor makes for the alteration we feel sure will be considered needless, the change will be approved of by the subscribers, and now that our old friend has come “out fresh and in good condition” (excuse a stable phrase), we wish him every success, and trust that he will go “across country” well, and win a stake that will fill the purse of the worthy Editor.

R. T. E.

Shrewsbury, Jan. 5th.

NEW PLANTS.



PALUMBINA CANDIDA (*Bot. Mag.*, t. 5546).—Orchideæ. A pretty and interesting plant, originally flowered, some twenty years ago, by the Messrs. Loddiges, when it was referred to *Oncidium* by Lindley. Professor Reichenbach has lately

studied its characters, and being satisfied of its distinctness from *Oncidium*, has applied the generic name of *Palumbina*. The plant is small, with narrow pseudo bulbs, each bearing a single linear or wedge-shaped leaf, six inches to a foot long. Racemes few-flowered, erect, slender, flowers an inch across, of a firm texture, all but entirely white; the lip has a few reddish spots, on a yellow ground, on the stigmatic surface at its base. In a moderate temperature it is easily grown, blooming in the summer months, and lasting long in beauty.

NASTURTIUM CANTONIENSE (*Journal of Botany*, vol. iii. p. 378).—Brassicaceæ. An aquatic species, resembling *N. hispidum*, from which it differs in its nearly entire leaves, subglobose fruit, and much longer pedicels.

HYPERICUM SAMPSONI (*Journ. Bot.*, iii. 378).—Hypericaceæ. Met with by Dr. Hance, on muddy river banks, near Canton. It is a remarkable and distinct species, with opposite oblong connate leaves, and yellow flowers, produced in bunches.

PALAFOXIA HOOKERIANA (*Bot. Mag.*, t. 5549).—Compositæ. A beautiful hardy



PALAFOXIA HOOKERIANA.



PALUMBINA CANDIDA.

herbaceous plant, sent by Dr. Parry from New Mexico to the Royal Gardens, Kew; also introduced to commerce by Mr. Thompson, of Ipswich. It grows two to four feet high, has alternate lanceolate leaves, and bold corymbs of rosy purple flowers.

SEDUM DRYMARIODES (*Journ. Bot.*, iii. 379).—Crassulaceæ. A pretty and delicate species, met with by Dr. Hance, in damp hollows of limestone rocks, in the province of Kwangtung, Southern China. The leaves are distant, fleshy, and spatulate; the flowers are produced in terminal cymes; they are white, with purplish anthers, and characterized by excessive delicacy and tenuity of structure.

OPHIOXYLON CHINENSE (*Journ. Bot.*, iii. 380).—Apocynæ. A new species of "snake-wood," discovered by Mr. Sampson in Kwangtung, Southern China. It is a shrub with smooth lanceolate leaves and white flowers.

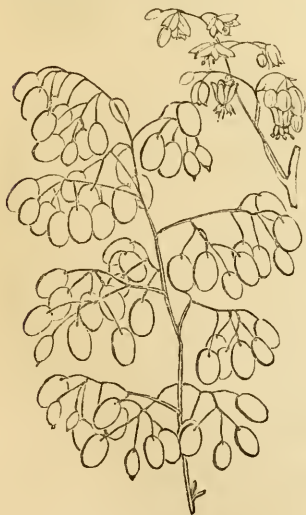
TRICHOPILIA TURIALVE (*Bot. Mag.*, t. 5550).—Orchideæ. An unattractive species from the volcanic Turialva, in Central America. It was discovered by Mr. Wendland, the grandson of the first of the

botanical Wendlands. "The erect fimbriate membrane surrounding the anther reminds one of an old-fashioned, stiff, erect lady's collar." The flower is yellowish white, the lip deeper yellow.

AQUILEGIA CÆRULEA. — *Ranunculaceæ*. This is a slender-habited herbaceous plant, native of the Rocky Mountains. The flowers are remarkable for the extreme length of their slender spurs and their reversed position, which causes the spurs to have a perpendicular position, instead of horizontal, as in other species; also for their exquisite colouring, principally white and violet, which is so pure and delicate, that the flower has been described as one of the most "spiritual" ever seen. There is no family which would so certainly repay an amateur for the trouble of collecting all the species as the columbines; they are all beautiful, and a certain few are scarcely to be matched amongst herbaceous plants.

DIANELLA TASMANICA (*Bot. Mag.*, t. 5551). — *Liliaceæ*. This is a fine greenhouse shrub, from Tasmania, of which the great beauty consists of its bright blue berries, which hang for many weeks on the hair-like pedicels, and form a conspicuous ornament in a conservatory. It was raised from seeds sent to Kew by William Archer, Esq., F.L.S.

RHODODENDRON HODGSONI (*Bot. Mag.*,



DIANELLA TASMANICA.

of Guatemala. It has been best known hitherto as a most difficult species to flower, having been very nearly killed out by being subjected to too high a temperature. Having been tried in a cool house at Knypersley, it bloomed freely; and Mr. Bateman has no doubt that, with cool treatment, "masses of flowers will be produced." The spike is dense, and consists of myriads of small flowers, of a rich purplish pink or magenta colour.



TRICHOPILOIA TURIALVÆ.

t. 5552). — *Ericaceæ*. One of the noblest of the grand series of rhododendrons that adorn the Eastern Himalaya mountains, discovered by Griffith, in Blotan, in 1838, and gathered by Dr. A. J. D. Hooker, in alpine valleys of Nepal and Sikkim, at elevations of ten to twelve thousand feet. It flowered in the temperate house at Kew, in April last. It forms a large shrub, with oblong leaves eight to eighteen inches long; they are coriaceous, glossy above, but clothed with ferruginous tomentum beneath. The flowers are produced in crowded heads; corolla campanulate, colour pale purple, shading to pink.

BEGONIA BACCATA (*Bot. Mag.*, t. 5554). — A robust shrubby species, discovered by Mr. Gustav Mann in the Bight of Benin. The leaves are six to ten inches long, broadly orbicular-cordate; flowers two and a-half inches across, white, or white and pink. Fruit, a large, nearly spherical berry.

EPIDENDRUM MYRIANTHUM (*Bot. Mag.*, t. 5556). — *Orchidææ*. A charming species, discovered years ago by Mr. Skinner, at a very high elevation on the moun-

THE DEW-DROP AND THE ROSE

A ROSE in the moonshine lay quietly sleeping,
Where zephyrs were timidly creeping, creeping ;
A dew-drop crept silently into its breast,
Without waking the rose from its moonlight rest.

When morning dawned, the rose was waking,
While glimmering leaves were shaking, shaking ;
And finding a dew-drop so near to her heart,
She prayed he would ne'er from her bosom depart.
She folded him close in the warmth of her love,
As the wings of the mother fold round a young dove.

The morning was dawning, the rose was waking,
And rustling leaves were shaking, shaking.

The gleams of the sun came sily glancing
Where leaves on the branches were dancing, dancing ;
And on the green moss where the rose had been sleeping,
The golden glances came peeping, peeping.
The rose felt a joy in her fragrant breast,
When she saw her loved dew-drop still lying at rest ;
But while she was watching her loved one's eye,
He dissolved as a dream, and soared up to the sky.

—The sorrowful rose hung her head in weeping,
While the dew-drop went upward, creeping, creeping.

So the morning of life may have blessings to cheer it,
And love, like the dew, gem the blossoming heart ;
Though the joy of a life may be gathering near it,
That joy, like the dew-drop, soon, soon must depart.
But still 'tis for ever a sweet consolation,
If that which we cherish pertains to the sky,
For the fond hope is left in our gloomy probation,
That the dew-drop we cherished still sparkles on high.
There are gardens above, where the spirits we love
Will be taken like dews from the roses of this ;
Where nought can destroy, they awake in their joy,
To dwell peacefully ever in regions of bliss.

So to heavenly hopes we may gladly be waking,
Though the heart, in its sorrow, is breaking, breaking !

EDIBLE AND ORNAMENTAL GOURDS.



GOURDS are now grown in collections, and add very much to the interest of the kitchen garden, while a few of the smaller-growing kinds are invaluable for decorating trellises, arbours, summer-houses, etc. The London public have had two very fair examples lately of the attractiveness of gourds as subjects for exhibition. At the Guildhall Flower Show of the United Horticultural Society, Mr. Young, gardener to R. Barclay, Esq., West Hill, Highgate, exhibited 1000 varieties, covering about 60 feet run of table space, and comprising specimens varying in size from that of a "big drum" to a nutmeg, and of all colours and shapes. At the Autumn Show of the Royal Horticultural Society, 1000 varieties were shown by Mr. Blundell, of Burseldown, Southampton, who was

the original introducer of the cattle melon. Here, again, were samples of all sizes, many of them gorgeously coloured, and not only curious, but wonderful in outline. In each of these instances the seeds had been supplied by Messrs. Barr and Sugden in the regular way of trade, a fact which affords some idea of the popularity gourds have acquired among amateur cultivators. Many persons who see these collections, and who know that to grow them is scarcely more difficult than to grow a bunch of turnips, are nevertheless deterred from engaging in so profitable and amusing an undertaking by the general fear of poison which prevails. *There is no proper ground for any such fear*; nearly all the ornamental gourds in cultivation are edible, and if ever a question should arise, the flavour of the gourd will determine it in an instant. All pernicious examples of *cucumis* have an obnoxious taste, and the quality of a gourd may be ascertained without cutting it, by merely taking a small slice from the stalk and masticating it. If that is nauseously bitter, it would not be wise to eat the gourd. But even this test is unnecessary, because poisonous gourds are too disgusting in flavour for any human being to swallow enough to do injury. As to the use of gourds, it is well known that any of them may be boiled when young in the same way as the common vegetable-marrow, and make a most acceptable accompaniment to roast meat. The common pumpkin of the cottage gardens, cut when as large as a good-sized turnip and boiled, is quite equal to the best of the marrows. But it is not so well known that the green tops nipped off the vines (three inches long at the utmost) make the most elegant and delicious dish of greens ever cooked. People grow spinach beet, which never cooks a good colour, because during very hot weather spinach is always stringy and seedy. It would be much better to plant out a few common pumpkins on purpose to supply green tops, for when kept nipped they throw out new shoots abundantly, and pay as well for greens as for fruit, but no one should expect both in large quantity. If the seeds are sown in the open ground on small hillocks on the 1st of May, a good crop of either fruit or tops may be expected; in fact, all the gourds may be grown by this simple method. But it is much better to sow on a gentle hot-bed about the 10th of March, and get all the plants potted in good time, and plant out early in May on beds prepared for the purpose, and raised a little above the general level, both to catch the earliest rays of the sun, and to throw off excess of water during heavy rains.

THE GARDEN GUIDE FOR FEBRUARY.

FLOWERS OF THE MONTH.—*Greenhouse*: Azaleas, various Camellias, Tree Carnations, Cinerarias, Primulas, Cyclamens, Hovea splendens, Acacia unciata, A. grandis, A. floribunda, A. holosericea, A. Drummondii, Brachysema lanceolatum, B. hybridum, B. undulatum, Cytisus filipes, C. proliferus, C. Atleana, C. racemosus, Dielytra spectabilis, Epacris impressa, Pelargonium Gauntlet, Crim-son King, Desdemona, Alba multiflora, Blanchefleur, James Odier, and others. —*Garden*: Eranthis hyemalis, Tussilago farfara, T. fragrans, Hepatica triloba, Leontodon taraxacum (lovely now, though a "weed" by and by), Catha pulustris, Primula vulgaris in variety, Ruscus aculeatus, Cheiranthus alpinus, Sanguinaria canadensis, Arabis alba, Draba cuspidata, Scilla bifolia, Galanthus nivalis, Pulmonaria officinalis, Vinca minor, Saxifraga crassifolia, Viola odorata, Eranthis Siberica, Iberis sempervirens. —*Frame*: Snowdrops, Squills, Hyacinths, Tulips, Crocuses, Helleborus niger, Cyclamen coum, Ornithogalum fimbriatum, Bellis perennis, various; Coronilla emerus. —*Ericas*: Petiveriana, blanda, vernalis, melastoma, transparent, exurgens, bicolor, coccinea, echiiflora, imbecilla, Linnæana, elegans, præstans, physodes, sebana, Plukenetiana, gracilis, poziza, assurgens, versicolor, bandoniana, grandinosa, pellucida, pinea, radiata, triumphans, viridescens, Cavendishiana. —*Orchids*: Epidendrum vitellinum, Grammatophyllum Ellisii, G. speciosum, Lælia elegans, L. Maryanii, L. superbiens, Lycaste Deppii, Skinneri delicatissima, Miltonia cuneata, Odontoglossum maculatum, O. membranaceum, O. pulchellum, O. triumphans, Dendrobium moniliforme, D. nobile intermedium, D. nobile pendulum, Oncidium Barkerii, O. Cavendishii, Phajus grandiflorus, Schomburgkia crispa, S. undulata, Sophronites cernua, S. grandiflora, Cælogyne cristata, Brassavola glauca, Cattleya Walkeriana, Ansellia Africana, A. gigantea.

FRUITS IN SEASON.—*Apples* : Ashmead's Kernel, D ; Barcelona Pearmain, D ; Beachamwell, D ; Borsdorffer, D ; Boston Russet, K ; Bringewood Pippin, D ; Claygate Pearmain, D ; Court of Wick, D ; Count Penduplat, D ; Duncelow's Seedling, K ; Fearn's Pippin, K ; Federal Pearmain, D ; Golden Harvey, D ; Golden Russet, D ; Hall Door, D ; Ilanwell Souring, K ; Holland Pippin, K ; Keddleston Pippin, D ; Kirke's Lord Nelson, K ; Lewis's Incomparable, K ; Loan's Pearmain, D ; Lucombe's Seedling, K ; Minchall Crab, K ; Pomme Gris, D ; Reinette blanche d'Espagne, K ; Ribston Pippin, D ; Rosemary Russet, D ; Round Winter Nonesuch, K ; Russet Table Pearmain, D ; Stamford Pippin, D ; Sykehouse Russet, D ; Tower of Glammis, K ; Wadhurst Pippin, K ; Winter Codlin, K.

Grapes, same as in January.

Pears.—Bergamotte Esperen, Buerré Duhaumè, Buerré Gris d'Hiver, Beurré de Rance, Buerré Sterckmans, Chaumontel, Colmar, Colmar van Mons, Easter Beurré, Elisa d'Heyst, Forelle, Princess Royal, L'Inconnue van Mons, Jean de Witte, Josephine de Malines, Ne plus Meuris, Notaire Minot, Prévost, Prince Albert, Rousse Lench, Shobden Court, Suzette de Bavay, Vingoleuse, Winter Nelis.

GARDEN WORK.

Kitchen Garden.—Early sowings of seeds of summer crops should be made on warm, rather dry soils, the earlier the better. But on cold, damp soils there is really nothing gained by early sowing ; for if bright weather brings up the plants, the next change to cold and wet kills them off, and the vexation is greater in proportion to the extent of the original promise of forwardness. Take advantage of fine weather to get all digging and manuring completed ; in fact, let *out-door* work now take precedence of everything else, even to the neglect, if it cannot be helped, of other matters. Crops that are specially valued for earliness, such as saladings, may be greatly helped by means of warm borders under good walls, and protection by means of borders covered with straw or reeds.

Fruit Garden.—Prune out-door vines, and train only ripe, hard wood, the distances between the rods to be eighteen inches. Complete all pruning and nailing of wall trees not yet done, and lay a good mulch of fat dung on old borders that have not had such refreshing for some time. Trees that bear well must be fed well. Many cultivators are afraid to manure fruit trees for fear of inducing a gross habit, but this is seldom the result of manuring trees that have acquired age and a fruitful habit. Of course, a gross habit is not to be encouraged, but, on the other hand, if fine fruit is desired, the roots must have food enough to furnish it. Do not be in haste to begin grafting ; it is best to see the stocks actually moving before putting grafts on, as in that case they take directly, and the losses are fewer than when they get a little shrivelled before a junction takes place.

Flower Garden must be kept clean. Do not be in haste to dig borders in which bulbs and herbaceous plants predominate, or indeed any borders well furnished with permanent residents. The operation is sure to do more harm than good, and many a fine crown of pæony or rudbeckia, or other good subject, may be chopped to pieces.

Greenhouse to have as much air as possible, as weather may permit. Where propagating is the order of the day, a brisk heat may now be used. Beginners must be content with an average of 60 degrees, but experienced hands may let the heat go up to 80 degrees with any kind of cuttings, and get them rooted with great speed. A great many hard-wooded plants are growing, and some are in flower ; these will require plenty of air, but those just starting may be kept rather close till the first leaves are pretty well expanded. A good average temperature now is 50 degrees, rising to 60 or 65 degrees with sunshine, and going down to 45 degrees at night.

Stove.—Many plants will require to be repotted and trained out afresh, and it will be unwise to delay such work beyond the first indications of a start. Plants just out of bloom to be cut back, and allowed to break again before repotting. A good time this to begin with *Stephanotis floribunda*. Average temperature, 55 to 60 degrees night ; 65 to 70 degrees day.

Vinery.—Vines just starting to be kept at about 50 degs. till the first young leaves are somewhat developed, then increase the temperature, and get up a good heat for the blooming. It is of the utmost importance to supply the roots with sufficient warmth and moisture. The last is easily accomplished, yet it should be done with

care, for *cold* water will not benefit the roots of a vine in active growth at this time of year. As for the second requisite, heated borders are the proper thing, and in all good gardens heated borders are gradually taking the place of the old borders, which, being cold, and preventing thereby a reciprocity of action between roots and leaves, cause frequent losses of crop through shanking, rust, and mildew. In forcing vines, a heated border is nine-tenths accomplished towards final success.

NEWS OF THE MONTH.

INTERNATIONAL HORTICULTURAL EXHIBITION AND CONGRESS.—This exhibition, which is to open on the 22nd of May next, had its origin at one of the meetings held in 1864, at Brussels, under the immediate patronage of the late lamented King Leopold and his family, on which occasion the English horticulturists who had assembled in the Belgian capital resolved that Great Britain, as one of the foremost nations in horticultural matters, ought no longer to lag behind its neighbours in adopting such an influential means of advancing the kindred sciences of botany and horticulture. The idea thus originated was revived at the exhibition which was held last year at Amsterdam, and it was then definitely arranged that immediate steps should be taken for carrying out the proposed London meeting during the present year, it being understood that similar meetings were to be held in other European capitals in succeeding years—namely, in Paris during 1867, and in St. Petersburg during 1868. It will be gratifying to the friends of horticulture to learn, that her Majesty the Queen, with her usual generosity, has been graciously pleased to give the scheme her countenance and support; while the patronage of his Royal Highness the Prince of Wales, and of other members of the royal family, has been freely accorded to it, and the general list of supporters has already become both extensive and weighty. The locality which has been selected for the show is South Kensington; and the executive committee have already come to an understanding with the authorities of the Royal Horticultural Society, by virtue of which the visitors to the show will have free access to the Horticultural Gardens. The show itself, thanks to the permission of the First Commissioner of Works and the Lords of the Treasury, will take place on the site of the Exhibition of 1862. The building designed for its accommodation is to cover an area of three acres, and, instead of the crowded and formal arrangements which mostly prevail at exhibitions of this sort, the space is to be laid out as an ornamental garden, the plants and other objects of exhibition being disposed with a view to picturesque effect. Should the Fates be propitious, the lovers of these pleasant horticultural gatherings may look forward to hold, next May, such a feast of flowers as has not hitherto been consummated, at least in this country. The amount of the prizes offered by the Committee is £2500, to which the Society of Arts add £50. The banquet, to be held in connection with the exhibition, will take place in the Guildhall of the City of London, which has been generously granted for the purpose by the Corporation.

THE EDUCATION OF GARDENERS is the subject of an elaborate report lately presented to the Council of the Royal Horticultural Society, by a committee appointed to make an inquiry and prepare a recommendation. The council have adopted in great part the recommendations of the committee, and the result is, that preparations are being made at Chiswick to render the Society's garden suitable as a school for gardeners. Pupils will be received for one, two, or three years; they must be over twenty years of age, and have had three years' experience in good gardens. During their term of probation they will receive from 12s. to 14s. a week as wages. We cannot help thinking the scheme far too complicated to serve the purpose intended, for the rate of wages paid to gardeners is too low to justify the sacrifices required in the course of education prescribed, and Chiswick can scarcely be made fit to serve as a school for gardeners without an outlay considerably larger than the council intend to incur for it, and the exhibition there of much higher talent in the direction of garden-work than the Society can command, under present circumstances.

THE VICTORIA NURSERY of Mr. B. S. Williams, near the Archway Tavern, Highgate, is now completed, and the public are invited to inspect the extensive and

beautiful collections of orchids, palms, ferns, and miscellaneous conservatory plants which Mr. Williams has brought together, and which, as the result of many years of assiduous devotion to the highest departments of horticulture, and representing nearly all the climates of the world, will certainly well repay any of our readers who will make a visit.

A TESTIMONIAL TO THE REV. S. R. HOLE, of Cauntton Manor, Newark, is in preparation, the object being to pay to Mr. Hole an elegant and well-deserved compliment in recognition of his services to floriculture, as the founder of the National Rose Show. To say that such a movement has our hearty concurrence and support is scarcely necessary. Readers of the FLORAL WORLD have always been kept in mind of the fact, that to Mr. Hole we are indebted for the delights and benefits that accompany and follow the great exhibitions of roses which have now become established among the institutions connected with floriculture. Those who wish to subscribe to this testimonial must do so quickly. Subscriptions may be sent to Mr. Charles Turner, Slough, or the Rev. H. Dombrain, Deal.

MESSRS. CUTBUSH AND SONS, of Highgate Nurseries, will hold their usual exhibition of hyacinths from Tuesday the 20th to Saturday the 31st of March, both days inclusive, but exclusive of Sundays.

CATALOGUES RECEIVED.—*B. S. Williams, Victoria Nursery, Holloway, N.* The seed catalogue for 1866 contains a very complete selection for kitchen garden, flower garden, greenhouse, etc. Mr. Williams offers seed of Wetherill's celebrated strain of cinerarias, and his own matchless fringed primula, now so noted for their splendid colours and stately habit of growth.—*Barr and Sugden, 12, King Street, Covent Garden, W. C.* A copious list of every requisite of the season, including the picotees, carnations, etc., from "Our Sardinian correspondent," and an announcement of "Standen's Gardener's Friend," which we can recommend as a most valuable artificial manure.—*W. Cutbush and Son, Highgate, N.* A short list, containing an excellent selection of the most useful seeds for kitchen and flower garden, and announcing the sale for the first time of the new "Princess Alice" Raspberry, and Varney's "Prince of Wales" Black Currant.—*W. Wood and Son, Maresfield, near Uckfield, Sussex.* Catalogue of Seeds, Catalogue of Fruit-trees, and Catalogue of Roses. Three excellent lists.—*Hooper and Co., Covent Garden, W. C.* The spring catalogue of this firm is peculiarly interesting, as it takes in a number of subjects of great interest to amateur cultivators, which are usually difficult to obtain.—*Sutton and Sons, Reading.* The "Amateur's Guide" for 1866 is as full of interest as any of its predecessors, and there are added to the useful lists of seeds a carefully prepared calendar of operations in the kitchen garden, and various notes on the cultivation of vegetables, annual flowers, etc. The list of zonal geraniums is rather behind the time.—*John Fraser, Lea Bridge Road, Essex, N. E.* The general plant catalogue for 1866 comprises every class of subjects in cultivation, from the favourites of the stove to the cheapest border shrubs and flowers. The collection is particularly rich in roses, geraniums, fruit-trees, and ornamental trees and shrubs.—*W. Knight, Hailsham, Sussex.* The general plant list shows a good assortment of roses, fruit-trees, and ornamental shrubs.—*W. Thompson, Tavern Street, Ipswich.* The catalogue of seeds sent out by this enterprising collector is particularly interesting to lovers of first-class herbaceous plants. In the present issue will be found the usual list of established subjects, and special notices of such gems as *Aquilegia canadense*, *Palafoxia Hookeriana*, *Pentstemon grandiflorus*, and others that are too good to be made known to any but the choicest horticultural spirits.

TO CORRESPONDENTS.

GOOSEBERRY CATERPILLAR; VINE BORDERS.—*A. B.*—Removal of the earth three inches deep, and as far from the stems as the branches extend, and the burial of that earth in a trench, will be as effectual a way of getting rid of this pest as any you could devise. The grubs are now in the soil, in a helpless state of hybernation, and if deposited at the bottom of a trench a foot or eighteen inches deep will never see the light again. Any vine border would be benefited by being covered at this

time of year; for though the vine is hardy, it is quite contrary to its nature to be so wet and cold at the roots as vines must be in this country during such weather as we have had lately. In making a vine border, take six parts good loam—if rather stiff no matter—and one part each of sand, broken bones, old plaster, and charred rubbish. It must be borne in mind, that such directions as these are given in order that beginners may have a rule sufficiently definite to prevent any outrageous mistake; practical men never weigh and measure the ingredients for composts. A vine would thrive in half clean lime rubbish and half loam; or in half sand and half loam; or in four parts loam, one of sand, one of rotten dung, and one of broken bones. We have a tremendously robust Chasselas Musque growing in a walk which consists of clay trodden hard like a pavement, over which there is about a foot of coal ashes. Mr. Glendinning used to grow good grapes in a border which consisted in great part of coal ashes. To be in the full sun, and to be tolerably dry at the root, are the two golden rules for the growth of vines. Mr. Howlett was right in cautioning readers about lime rubbish, saying that it tends to consolidate the soil. If it is very fine, and consisting chiefly of dust, such will be the case; but if really consisting of nodules of mortar and nodules of brick and stone, of the size of a walnut to the size of the fist, it will be the very best stuff to incorporate with loam for vines or any other fruits. Very glad indeed to hear from you again as of old.

LISTS OF PLANTS.—Amateur.—No one would more heartily rejoice than the Editor of the *FLORAL WORLD* if he could at all times use homely English instead of compounds of Greek and Latin, that are always unfamiliar, and sometimes more barbarous than their English equivalents. But it is much easier to object and deplore than to find a remedy. Take, for example, the list of ferns at page 5 of the last issue of this journal. Only some half dozen of all those have English names; and to translate the names by which they are there announced would neither afford information to the reader, nor assist him in identifying the plants. The numerous advantages of deriving the names of plants and animals from the dead languages are so many, that as compared with them the disadvantages are as nothing. The fact that the roots of the terms are in dead languages preserves the terms from colloquial corruptions, and they remain for ages in their entirety, and serve as *permanent* insignia. Another advantage is, that the same names are adopted in all countries; the language of science is the same everywhere; so that a Frenchman, German, or Spaniard requiring a list of ferns for a cool-house, and not able to read a word of that article, would be as well informed as to the ferns themselves as any English reader. On the other hand, if described in the vernacular, and named according to the fancy of the writer, and not according to the rules observed by botanists, the names would be useless to English readers as much as to foreign readers, for it is only an *old established* name of a plant that can ever be used for purposes of identification. This brings us to the lists under the heading of "Garden Guide," where undoubtedly a few well-known names might be used. But if you were as well aware as the writer of this, of the confusion and blundering that arise in plant buying and plant growing through using colloquial names, you would prefer to see entered in such a list *Helleborus niger* rather than Christmas rose; for the latter would be understood by many as a rose proper, and so on all through the list. There are many other reasons for the adoption of the scientific method, even in so unpretending a book as this: one of these is that it saves space. At page 30 of last month's number, you have an amount of information that would occupy a couple of pages on your plan all compressed into the compass of a third of a page on the plan that experience sanctions. Another reason is, that there are very few persons interested in plants who are not also cultivated in mind, and well able to perceive the importance of names that are fixed by scientific rules, as better than names formed according to no rule, and which are liable at any time to change their meaning, and which for that reason are dangerous.

BONE WASTE.—Country Curate.—It will improve the growth of almost any plant, but it must be used in very small quantities for fuchsias and geraniums, say not more than a handful to a 6-inch pot. For potted vines one-sixth part may be added to the turf and loam. In the kitchen garden we should sow it in the drills or over the drills, with peas, beans, cabbage, etc., at the rate of 1lb. to every three square yards. For onion beds mix it with half its weight of charred dust, and use the mixture at the rate of nine pounds to the square rod. Your plan of starting gloxinias and achimenes will never answer.

AQUATICS.—C. M. W.—Mr. Loudon used to grow aquatic grasses and other

moisture-loving plants in pots. These pots were placed in long stone troughs; the troughs were furnished with pipes for entrance and exit of water, and by turning a tap the pots were at once submerged to the rim or to any height desired, and by a similar act at the other end the trough was emptied. This same process might be adopted where many choice plants are grown for botanical purposes only without reference to their habit, and simply to reduce the labour of watering to a minimum. We are not in favour of plunging deeply any amphibious plant; two or three inches will be better than plunging to the rim. Some of our bog-growing ferns, as *Athyrium f. f.* and *Osmunda regalis*, may be grown to perfection in large pots plunged one or two inches deep only, with frequent syringing overhead and a moderate degree of shade.

RED SPIDER.—*R. B.*—Red spider is recognized by the leaves presenting a peculiar mottled appearance on the upper surface from the exhaustion of the chlorophyll, which at once betrays its presence. Up to the present period the application of *Sulphur* is the only means of repelling the injurious effects. The proper course is not to burn the sulphur, but simply to *volatilize* it through the medium of a warm damp atmosphere. The best preventive is liberal cultivation.

FRUIT TREES NEAR A POND.—*A. P.*—We are not surprised to hear that fruit trees planted beside a pond which is filled with warm water grow well and bloom abundantly, but produce no fruit. The vapour from the adjoining mass of warm water probably retards the ripening of the wood, by keeping the leaves in activity to an unreasonably late period in autumn. But supposing the wood does ripen, then when the trees are in blossom, warm vapours rising about and amongst them must be fatal to their setting for fruit as they should do. No doubt if they did set properly, the fruit would be unusually fine; but that is impossible, for pollen cannot be effectually distributed, unless the air is very dry. These trees twenty years planted beside a pond for gold fish, which is filled with warm water, may serve as an illustration of the theory of fertilization of fruit trees generally. Why do we cease to syringe vines when in bloom? Why do we allow the spring breezes to circulate freely in our orchard houses? and why, if the weather is muggy and moist during the blooming of fruit trees, is there a general failure in the fruit crops? The same answer may be given to each of these questions. The pollen requires a dry air for its distribution, and in a moist air it is retained in its cells until the pistils have passed that stage of their development at which the deposit of pollen on them would cause fertility. It may happen also that your trees have sent their roots down into a lower stratum of soil, into which the warm water from the pond has found its way by infiltration. But we think the vapour during the season of blossoming quite sufficient to account for their barrenness. We should like to see *camellias*, *rhododendrons*, and *kalmias* tried in those borders, to know what effect the warm vapour would have upon them.

MUSHROOMS WITHOUT SPAWN.—In the November number of the *FLORAL WORLD*, at page 257, on the subject of Mushrooms in Pasture Land, you say that good stable manure spread out in a mass two feet deep, and covered with about four inches of good loam any time in the spring, and left alone in any shady place out of doors, will be sure to produce fine mushrooms from about the end of June to the end of September. Should the manure be put on *at once*, or may it be put on as it can be procured? and should the loam be put on directly the two feet of manure has been laid on the ground?—*J. W.* [The manure had best be kept under cover until there is sufficient. If spread about rather loosely in a shed or outhouse, it would be all the better. When sufficient has accumulated, the bed may be made and covered with loam, and left to take care of itself. If the bed can be covered with a frame or some boards, and be regularly watered, it will produce earlier and more plentifully. We grow abundance of fine mushrooms by this method by beds made up in May.

M. C. W.—From the present time to the middle of April will be the best time to move a large *Magnolia grandiflora*. A south-east aspect will suit it; generally speaking, south-west is better to escape the east winds that prevail in March and April. In the replanting have the roots carefully filled in with turfy peat chopped to the size of the fist, or with good leaf-mould. It is a difficult subject to move when large, owing to the fleshy nature of the roots.

HARDY HERBACEOUS PLANTS FOR EXHIBITION.—*Amateur.*—We can easily enough enumerate half-a-dozen kinds to show in July, and another half-dozen to show in September. But as you are in earnest, you do not want to be shut up to

half-a-dozen for either season. The way to make sure of winning with such plants is to grow at least three times as many sorts as you will want, that when the day comes for exhibiting, you may select those which are most showy and most fresh, for seasons and circumstances influence them so much that it would never do to be confined in your selection of plants at the last moment. The following are first-class subjects for exhibition:—*Achillea millefolia* rosea, *Anemone Japonica* and varieties, *Campanula carpatica*, *Chrysocoma linoisyris*, *Delphinium formosum* and varieties; *Dianthus Heddewigi*, *laciniatus*, and varieties; *Epilobium hirsutum* variegatum; *Geranium sanguineum*, *Lobelia fulgens* and varieties (as this is not quite hardy, a question might arise about disqualifying, but most judges would consider it legitimate), *Platycodon grandiflorum*, *Polemonium ceruleum* variegatum, *Pyrethrum*, various; *Spirea filipendula pleno*. *Antirrhinums*, *Pentstemons*, and the dwarf varieties of *Phlox* are eminently suitable.

SAXIFRAGAS.—*R. W.*—A collection of saxifragas would be thrown away on a shady bank consisting chiefly of clay. They require a sandy soil; if inclining to peat it will suit many of them well. But the most important point is full exposure to sunshine.

IVIES IN A BALCONY.—*N. M.*—As it is not convenient to renew the soil of ivies grown in boxes in balconies, it would be well to sprinkle the surface of the soil with the prepared manure known as “Standen’s Gardener’s Friend,” which is sold by Messrs. Barr and Sugden. It is the best of all the prepared manures, very cleanly and inoffensive, not attended with danger if used in excess, and is best used *dry*, which is also the best way of applying it. After remaining three years in the boxes, it would be advisable to untie the stems carefully, and gather them up in loose bunches; then take the roots out of the boxes, shake off all the soil, and replant them in a mixture of four parts good loam, one part small broken bricks, and one part thoroughly decayed manure. They should be planted firm, and the soil well pressed down in the boxes, and after the operation is completed, the stems may be trained out again as before. By such treatment a healthy, vigorous, beautiful growth will be produced: the leaves will be larger, richer in colour, and very glossy. The months of February and March would be the best time for replanting.

Dublin.—We never before heard of “Prockter’s Lamp Stove and Radiating Fire-Balls.” Can any of our readers furnish information respecting their suitability for heating plant-houses?

SMALL BEDDERS.—*Tyro.*—For edgings of small beds in a small geometric garden you require the neatest and prettiest plants that can be obtained. The arranging of the colours you will, of course, determine for yourself, according to the style in which the beds are planted, but any or all of the following subjects may be useful, because of their neat habit and decisive character:—*Cerastium tomentosum*, silvery; may be kept to a close thin line, if needful, by occasional clipping. Variegated alyssum, commonly catalogued as *Koniga variegata*, is very neat for a sharp grey edge, and may be kept very close by nipping. *Nierembergia gracilis*, white flowers very neat and pretty. *Geranium Dandy*, very neat and slow-growing, will make a beautiful grey edge. *Geranium Baron Hugel*, neat horse-shoe leaves and scarlet flowers, very dwarf and compact. *Geranium variegated Little David*, very dwarf, leaves white-edged, scarlet flowers. *Geranium, the Bride*, leaves edged white, flowers white, very small growth. A few annuals might also be useful, such as *Portulacca Blensoni*, *Fenzlia dianthiflora*, and *Saponaria calabrica*. The last-named will give myriads of its pretty pink flowers all the summer, if sown in March, where it is to remain.

FERNS.—*K. W.*—In the GARDEN ORACLE for 1866 you will find lists of ferns for all purposes, comprising about 500 species and varieties, with notes on cultivation, and a short essay on “Fern Growing made Easy.” The ORACLE also contains descriptions of all new plants, florists’ flowers, etc., etc.

ACHIMENES TO EXCHANGE.—I wish to inform your numerous readers that I have a few dozens of *Achimenes Chiritii* I should be glad to exchange for *Achimenes Ambrose Verschaffelt*, *Longiflora major*, and *Longiflora alba*.—*John Redshaw, Bourne, Lincolnshire.*

M. L. M.—The trees are not at all likely to stop up a drain which is more than six feet deep (six feet beneath the surface we suppose you mean), and two or three yards away from them. But the objection raised is not wholly fanciful, for trees do send their roots great distances sometimes, in order to enjoy the moisture of a drain, and in due time make another job for draining engineers.

THE FLORAL WORLD

AND

GARDEN GUIDE.

MARCH, 1866.

GRAPES FOR THE MILLION.—NO. II.



HOME-MADE wines are not in good repute with us, and it is only on rare occasions we meet with samples that we can drink without a shudder, and, after the shudder, a fear of colic. But this need not be. The climate of all except the most bleak and exposed parts of Great Britain will produce wine of excellent quality, if the cultivators go to work the right way to obtain it. In the first paper of this series I made some remarks on cheap and simple methods of growing good table grapes; I shall now direct attention to the cultivation of grapes for wine-making.

VINEYARD GRAPES.

It is generally understood that in old times there were vineyards in the land, and that our ancestors drank the good wine thereof. Intercourse with the Continent made the people of this country familiar with the stronger wines of the south of France, and of Spain and Portugal; and by degrees the vineyards disappeared, and British-made wine went out of use. But it need not be inferred that the English-grown wines with which our ancestors regaled themselves, and which it is certain that the monks—good judges of meats and liquors—partook of freely, were so bad as to be deservedly thrust aside in favour of the richer and fuller-bodied wines of the Continent. If we are to return to the use of home-made wines, we shall have scrupulously to avoid all attempt at imitating the products of continental vineyards, and take as much pride in the distinctive and peculiar character of the beverage as we already take a pride in the peculiarity and excellence of our beer. But I will not theorize, but at once state as matter of fact that I have tasted many samples of home-made wine that no continental growths could surpass for refreshing delicacy of flavour, and every wholesome quality we look for in wine, apart from its festive uses. Ten years ago Mr. James Holland, of Isleworth, gave me some wine made from wall grapes that was quite equal to any of the better class of pale dry dinner sherries in common use on good tables. Generally speaking, these wines are spoiled by the admixture of sugar and spirit, and the endeavour on the part of the manufacturer to imitate the wines in common use;

but the best use to which we can devote English-grown grapes is to brew a wine differing from all known kinds—that is to say, *sui generis*, as English, and as distinctive as our beer. Full-bodied wines we cannot produce, but most excellent light wines, which may be likened to Hock, Moselle, and Champagne, may be produced in plenty, and to bring them into such condition as to satisfy a cultivated palate, will depend much more upon the skill of the manufacturer and the suitability of the cellarage than upon the soil or climate of this country. I have imbibed, to my great pleasure and refreshing, at the table of my friend, C. Roach Smith, Esq., of Strood, in Kent, as good English-made sparkling Hock and still Moselle as I could wish at any time, even on the graudest occasions. These wines are peculiar, and I liken them to Hock and Moselle only for the sake of conveying an idea of their character. But Mr. Smith produces by a mixture of several sorts of white grapes, with a few black grapes added to give a tinge of colour, a most delicate and *recherché* wine of a pale rosy hue, refreshing bouquet, and dry styptic flavour, which would be thought much of by wine drinkers, and I would venture to say could not be equalled by any continental wine of low price. What are the full capabilities of our climate for the production of wholesome wines we know not—it is a matter for inquiry and experiment; but we know enough to be sure that every possessor of a garden may furnish his table with wine worth drinking, at a cost so trifling that expense need never be a matter for serious consideration.

All that has been said about wall grapes applies as directly to the growth of grapes for wine as for table. Those who have suitable walls, and who wish for good home-made wine, will do well to appropriate their walls to such varieties as are most suitable, as there will be a greater certainty of the grapes being well ripened than by open vineyard culture. But in spots moderately sheltered, and enjoying what may be understood as an average good climate, open vineyard culture will answer well, and is at once the simplest and cheapest mode of producing grapes for wine. The vines may be planted out in rows six feet apart every way, which will allow of a free circulation of air amongst them, and enable the cultivator to move amongst them freely. If land is expensive or limited in extent, some useful crops of summer vegetables may be grown between the rows, or the rows may be put at four feet apart, and if they run east and west they will not much shade each other. But in any case the vines must be six feet apart in the row, because of the system of cultivation to be followed. This, of course, will be what is termed the “long-rod system.” But there is a right and a wrong way of doing it, and the wisest course to follow will be to cut the vines down to four or five buds after they have been planted one year. Four strong shoots are to be allowed to grow, and all others are to be suppressed. These should be trained out sufficiently apart that their leaves do not overlap, but as nearly upright as possible, and they are to grow as long as they please—that is to say, they are not to be pinched or pruned during the whole of the season. In the winter they are to be pruned to three, four, or five feet lengths, and

the length of each rod must be determined by its degree of ripeness. Better cut them back to one foot, and have hard, brown wood, and plump, well-ripened buds, than allow any length of soft, greenish or slender wood to remain for fruit bearing. When pruned these ripe rods are to be trained down horizontal within a foot or so of the ground. They must be kept sufficiently far apart that their leaves do not overlap, and the rule must be to bring them as low and as nearly horizontal as possible.

It is not possible always to explain the reasons for doing things in a particular way, because of the digressions it occasions and the space and time consumed. But I will here remark that, in the first instance, we train the rods upright to encourage a vigorous growth, and we abstain from pinching and pruning in order to cause the lowest buds on the rods to ripen into a condition for bearing fruit the next season; for if we pruned the rods, the check caused to the flow of sap would cause those buds to start, and we should get useless wood shoots instead of the much-desired fruit buds.

In the winter pruning and tying down to the horizontal, we first relieve the vine of a quantity of wood which, being least perfectly ripened, is of least value, and thus throw the strength of the roots into the buds that remain on the ripe wood for fruit, and the shoots which are to be made for the next season. Tying down checks growth, and usually, when a branch of a tree is brought to the horizontal, one or more strong shoots start from its base, and take a perpendicular direction. This is just what we want these vines to do. While the pruned shoots are producing their fruit, there ought to be three, or four, or five, or if only a couple, sufficiently stout canes rising, and these canes should be trained upright as before, and be left unpruned till the end of the season. Then we cut away and destroy the canes which gave us fruit, and tie down a fresh set in their place, and so on for ever, the vine continually renewing itself from the root, just as a rose will do when it is in a quite natural condition, and has roots of its own.

Sometimes the vine will not produce fine canes to take the place of those tied down. In such a case it may be advisable to allow some of the old canes to remain until there are suitable canes to replace them, thus allowing them to fruit a second or a third time, as they will do. This would be called a combination of long-rod and spur pruning, a combination by no means desirable, and only to be adopted when, by a shyness of growth or any accident to a particular vine, there happens not to be at the end of the season canes suitable for the next year's use.

But the best care will all be wasted unless the right sorts are planted in the first instance. Black Hamburg, Chasselas Musqué, Esperione, and other first-rate wall grapes, are but second-rate or altogether useless when grown in open ground vineyards. The very best varieties for the purpose are the following:—

Royal Muscadine.—As there are at least two varieties in cultivation under this name, it may be right to say here that the proper one for wine-making produces a round berry of medium size; the bunch is broadly shouldered, averaging five to six inches each way;

the leaves are roundish, regularly lobed, and die off in autumn a bright yellow colour.

Miller's Burgundy, which is not useless if unripe, but will generally ripen well if grown in a sunny spot, even if the season is not so good as the average.

Claret.—This is one of the best wine grapes known, and its special use is indicated by its name. It is the kind generally grown in the south of France, and produces the real Bordeaux, which is the best of all wines, though not in high repute in this country. To prevent disappointment, I am bound to remark that this variety is rather tender in constitution, and needs a dry soil and a good climate to do well. In places known to be cold, therefore, it would be best to grow this on a wall. Yet wherever grapes are grown for wine, it should have a fair trial in open quarters; if those who try it derive no benefit, posterity may, and the time spent thereon will not be wasted.

With these three sorts the cultivator may provide himself with three kinds of wine from the open ground vineyard alone. With the additional help of a wall, there will be more variety of materials for the wine-press and the amusement of the connoisseur. The following varieties deserve to be fairly tried in the open vineyard:—

Cambridge Botanic Garden, a fine purple grape, noticed at length last month. Probably of no use for the wine-press, except, perhaps, to mix with others.

Early Black Bordeaux.—Berries large, round; bunches short; flesh melting, and very rich; colour a deep purple, with pale bloom. Too rich, probably, to be of any use in wine-making, but being hardy and early, likely to ripen well in good seasons without the help of a wall.

Macready's Early White.—Medium-sized, nearly oval berries; bunches small; the flesh poor but sweet, and the juice well adapted to make a light still wine, if aided with sugar.

July Cluster.—Small bunches, and berries plentifully produced. A most excellent grape, pretty sure always to ripen on stakes, and useful to mix for wine-making, to give richness and colour.

Our next business will be to consider the rather extensive but fascinating subject of ground vineries, on which I hope to be able to offer a few practical remarks next month.

SHIRLEY HIBBERD.

PRIMULA PRÆNITENS, OR SINENSIS, AS USUALLY CALLED.



FEW plants are more useful for winter and spring decoration than the single and double varieties of this lovely flower, the immense quantities of plants of the single variety grown in the neighbourhood of the Metropolis alone for window decoration, and of the double varieties for bouquet making, shows that their beauty and adaptability have not been lost sight of by the enterprising class of horti-

culturalists who grow flowers for the supply of the London markets only, and which is quite a distinct branch of business to the nursery gardens, as the growers for market do not care to sell excepting in the markets. The care with which the plants are produced, with their three little stakes and band of bass to hold the leaves in security, shows that the cultivation must be remunerative, and it does one good to see the flower merchants, as they would be styled in Paris, but in our commonplace language "hawkers," call from house to house with their basket of plants in the stereotyped pot for London windows, viz., five inches in diameter, the ruddy purplish-red and snowy-white blossoms, with their gauffered edges, showing up brightly and distinctly just above the foliage, putting one in mind of schoolboy days, when the stiffly-starched frill used to seriously interfere with the quick locomotion of the vertebræ of the neck. Our readers, however, will like to know how they are produced in such spick-and-span style, all a-growing and all a-blowing, as the Cockney vendor describes them.

The single varieties are raised from seed, sown from May to July, according to the period at which you wish your plants to be in perfection both as to flower and foliage. If you wish to have them at Christmas, sow in middle of May; if in February, sow in June; if in March and April, sow in July. The compost we usually sow our seed in is composed of fibrous yellow loam, old leaf-soil, and silver sand passed through a fine sieve, and well incorporated; three parts loam and one part leaf-soil will be the proper proportion, using sufficient sand to keep it porous. If leaf-soil cannot be procured, peat will answer the purpose, but it is not so good. The pot we use is a five or six-inch one, filled one-third of the way up with broken crocks for drainage, then fill with the compost nearly to the top, water with a fine rose thoroughly, sow the seed, and sprinkle a little silver sand on the top, barely enough to cover the seed; cover the pot with a pane of glass, and place it as near the light as possible in a shady part of the greenhouse or a frame, shading from the intense rays of the sun. In two or three weeks you will have a nice crop. As soon as large enough to handle easily, transplant singly into small thumb-pots, using the same compost, and place in a close cool frame for a week or ten days, gradually giving air to harden the young plants, and prevent them from drawing up weak and spindly. As soon as well established, repot into their blooming pots, using the compost in the same proportions, only passing it through a coarse sieve instead of a fine one, adding a small quantity of well-decomposed manure—the older the better. If you have a half-spent hot-bed to stand the plants on at this potting, it will assist them materially, as the grand secret is to keep them growing from the time the seed germinates until they are in bloom; allowing them to become pot-bound or checked in any way, will so injure your plants that a very unsatisfactory bloom will be the consequence. About the middle of September, they should be placed either in a nice warm greenhouse, with ample means for ventilation (by this we don't mean cold draughts of air, but the ventilation so arranged that the air shall be heated to the temperature of the house before coming into contact

with the plants), or a pit with the same command for admitting air on all favourable occasions. The Chinese primrose requires the treatment of an intermediate house through the winter months, in which the temperature should not be less than 45° or exceed 60° , unless when there is sun, when 5° for an hour or two in addition would do no harm.

Another point to be remembered is, when watering the plants, the water should be of the same temperature as the house or pit in which the plants are kept. With a little care the plants will progress rapidly, and as soon as the flower-spikes can be seen in the heart of the plant, weak manure-water should be given twice a week; only it must be weak, and should contain soot in solution if possible, as this, with plenty of light and air, will give a fine colour to the flowers, a great addition, and makes the plants of more value. It is better to sow seed and raise young plants of the single varieties annually, although if a very fine variety has been obtained, it may be propagated and grown from year to year in the same manner as described for double varieties.

The usual way of propagating the double varieties is by cuttings or splitting up the old plants. After blooming, the plants require a season of rest (say a month), after which, if kept close, they will grow freely, and produce plenty of cuttings. These should be planted in single pots (thumbs); the end of the cutting should be cased entirely in silver sand, and placed in a mild bottom-heat. In three or four weeks they will be rooted sufficiently to be repotted into a four-inch or five-inch pot, taking care to keep them growing without check, and as soon as rooted to the side of the pot, again shifting into a larger one. In this way fine plants can be grown in one season. To obtain, however, a fine specimen, instead of cutting the plants to pieces for cuttings, repot the whole plant at once into a five-inch or six-inch pot, taking care in every stage to well drain the pots, and when rooted nicely, pot into a 24-sized pot (eight inches), or larger if required, although it will be well never to over-pot any plants, as they will not make growth so quickly or so freely as when given a moderate shift.

To sum up in a few words, to grow primulas successfully, they must have no check from the first start, and avoid the two extremes, neither too cold or too hot an atmosphere, but the happy medium, usually termed an intermediate house, 45° to 50° by night, ranging from 55° to 65° by day, but not the latter unless by sun-heat. Water carefully, neither drenching the plants nor allowing them to flag, and you may expect some recompense for your trouble. These few hints will apply more or less to all soft-wooded plants, only they do not all require an intermediate house. A little practice will, we trust, with these remarks, assist our readers in the cultivation of the primula and other useful spring flowers.

U. H. S.

CULTIVATION OF THE POMPONE CHRYSANTHEMUM FOR EXHIBITION.

BY MR. PARKER, NURSERYMAN, OF STRATFORD.*



AFTER the admirable treatises which have appeared in the *FLORAL WORLD* on the growth of the Chrysanthemum by such able masters of the art as Messrs. Holland and Broome, who were the first to introduce the present system of training the pompone, it would be superfluous for me to attempt anything like a learned disquisition on the subject. But having undertaken to offer a few observations, I trust that the hints which I shall be able to give will be of some little assistance to my brother amateurs, in which case I shall be well repaid for any trouble I have taken.

In the first place, I will say a few words on the training of the pompone, for when a plant is properly trained, it forms one of the most beautiful objects that can adorn the conservatory or show-board. Some people have severely censured the present system of training, but that arises, I think, from a foolish and short-sighted prejudice, for plants not trained can never be made to attain to nearly the size of the trained ones, and if we can have a plant double the size, of good form, and every property equal to one untrained, it is obvious that training is advisable; and the very men who condemn the practice, if called upon to judge plants grown upon the two methods, would be compelled to give the prize to those that were five or six feet across, and every desirable quality in perfection, in preference to those that were not more than half the size, that were grown naturally, as it is termed, with the exception of stopping, and having such a negligent appearance as to look far from beautiful. I recollect being once connected with a society which gave prizes to both trained and untrained plants, the former being arranged on one side, and the latter on the other side of the room. The row of trained plants looked like beautiful beds of flowers, while the untrained ones flopped about in every direction, and so disappointed the exhibitors and visitors that it was determined to do away with them, with the exception of plants grown in five-inch or six-inch pots, so that they could not be grown large enough to be ugly. Then, again, why do not those men who condemn trained plants grow some in their natural way and exhibit them, and so put their

* The two most successful exhibitors of trained pompones at the London shows during at least fifteen years past have been Mr. Hutt and Mr. Parker. These have placed before the public plants five to six feet in diameter, convex like a watch-glass, solid with leaf and bloom, and the sticks and ties invisible. Mr. Hutt has never favoured us with any information respecting his practice, but plants of his and skeletons prepared from plants have been engraved in former issues of the *FLORAL WORLD* to show the mode of training, etc. We are very happy in placing before our readers the above paper, with which we have been furnished by Mr. Parker, whose practice differs in some respects from that usually followed. Mr. Parker has embarked in the nursery trade since the paper was written.—ED. F. W.

theory to the proof. I do not like to hear any one continually denouncing a certain system unless he is prepared to bring forward a better, and prove that his substitute is better than the original. It is all very well to say it deceives the public, but let an amateur go to a nurseryman or seedsman for plants or seeds, having previously seen flowers grow naturally, as they are termed, and see if they will turn out as he expects. I am sure they will not; they do not tell him that all the blooms have been stripped, with the exception of two or three, in order that they may produce a few very fine blooms, nor that they have applied liquid manure periodically, nor the many other artificial means employed by them to bring the blooms to perfection. In fact, the only artificial means that they do not resort to are training and dressing, as it is termed, and therefore I consider one system quite as artificial as another, and that the method of training is the least objectionable, if any objection can reasonably exist, for folks can immediately see that a trained plant has had artificial means employed to bring it to perfection, while with the others they may be deceived into the belief that they have been produced without the aid of human art, which would be very far from the truth.

Now when amateurs first commence growing the pompon, there are several evils to guard against and contend with. Generally speaking, they are a very excitable race of individuals, and are always wanting to see the end before they have well begun. They are very often too fast with the liquid manure, which I consider a very great evil, for if the pompon is too much excited when young, it will not properly ripen its wood, and if the wood is not properly ripened, it is impossible to obtain a fine bloom. The liquid manure I would recommend amateurs to use is made from rotten horse-droppings, for they will not be likely to give them too much of that, but if the plants are grown in good compost, they will not require much of this assistance. The compost that I use is composed of one part leaf-mould, one part rotten dung, and two parts of good friable loam, with a little silver sand to give a good drainage, for if not perfect in that particular, disastrous consequences are sure to follow, as they are thirsty souls, and require watering two or three times a day in dry weather, and therefore if not thoroughly drained, will get clogged, and the water become stagnant.

In first starting a plant (which I in general commence as soon as ever I can get a piece to start with, but some growers prefer waiting until they can obtain spring cuttings), the earlier you begin the larger your plants will be; but in growing standards you need not have fresh plants every season, for if they are protected from the frost, they can be kept any number of years, and the longer they are kept the larger they will be. But in growing other shapes I prefer fresh plants, and it will be necessary to consider what sorts you intend growing. The varieties I should recommend are—*light ones*, Andromeda, Cedo Nulli, and Mrs. Dix, the latter rather shy; *yellows*, Golden Cedo Nulli, General Canrobert, and Canary Bird; *other sorts*, Bob, St. Thais, Duruflet, Lilac Cedo Nulli, Salomon, and Alexander Pele. In growing the late varieties, such as Bob, I think it is best to have an old root with a sucker attached to it, because it

causes them to bloom much earlier. I then pot them in a three-inch pot, about the latter end of November or beginning of December, shutting them up for a week or two to give them a fresh start, after which the great question is to keep them growing as fast as you can. But they must have plenty of air to keep them healthy, and they must not have too much water for fear of frost, from which you must guard against by well matting the frame, which is a much better plan than giving them heat, as this last will be sure to cause them to run up, an effect you by no means desire.

As soon as all danger of frost is past, work must commence in earnest. I commence shifting into a five-inch pot, and stopping as often as they require it. This part of the growing must be learned by practice, as the long-jointed varieties will require stopping three times to the short-jointed ones' twice. I continue stopping them as often as I can until May, and then discontinue it altogether; and I prefer shifting them into every size pot as they grow, instead of letting them get cramped for room, and then shifting them into a pot two or three sizes larger, to save trouble. Besides, if you give them a large shift, all the goodness gets wasted out of the mould before the roots have been able to fill the pots.

About the latter end of April or the beginning of May, I plunge them in the ground, in doing which a little management is required, to prevent the roots from penetrating the ground, for if they are permitted to do so, they grow very rapidly, and when they are taken up they receive such a check that they will sometimes refuse to bloom at all. To prevent such a calamity as this, I dig a hole about a foot square, and put in a six-inch pot bottom upwards, so that the hole of one pot comes directly over the hole of the other, thereby insuring perfect drainage. I then commence pegging them up once a week. By so doing it stops the sap from flowing too freely, and causes them to break well back, and you may obtain fourteen or fifteen breaks, instead of four or five by stopping too often.

I now commence giving liquid manure, preferring to give it them rather weak to continually watering them with a strong dose once or twice a week, and using nothing but plain water in between, for that reminds me of a certain son of the Emerald Isle who fed his pig well one day and then gave him nothing for a day or two, and when asked his reason, he said it was to make it streaky, but as we do not want streaky chrysanthemums, I do not admire Pat's feeding. I increase the strength of the liquid manure as the plants advance towards maturity, but discontinue it altogether as soon as they show colour, when they should be got under glass directly, for although the pom-pone is so thirsty at the roots, it does not like wet on the flowers, as they are very likely to get mouldy and rot if suffered to get wet, which is very vexing to the grower after all the trouble he has taken with them.

CULTIVATION OF THE CARNATION AND PICOTEE.

BY MR. KIRTLAND, ALBION NURSERY, STOKE NEWINGTON.*



IN compliance with the request of the Editor, I shall offer a few practical remarks on the cultivation of these beautiful flowers. The readers of the *FLORAL WORLD* will not need to be persuaded of their claim to our highest consideration as subjects for decoration and exhibition, nor will it be needful to say, by way of introduction, that they should have an honourable place in every flower garden. I shall be as brief as possible, but shall not omit to mention any matters of practical importance.

SAVING SEED.—Perhaps a word or two may be advantageously said with regard to saving of seed. Few plants are more shy of bearing seed than the carnation and picotee; it often happens that out of a hundred blooming plants you may not get a score pods of seed. It may be accounted for in this way—first, because the flowers do not appear till late in the summer, and hence have not time always to ripen their seed, especially if it be a wet season; secondly, because the flowers that are usually cultivated are so very double as to preclude in a great measure the possibility of much seed being produced. The semi-double flowers yield the most. If you perceive the seed-vessel swell and grow hard, so as to give hope of seed, which it will not do till the flower is fading, then pluck the petals one by one out of the calyx or cup, taking care not to injure the styles (which have the appearance of a pair of horns), for if you do you lose all chance of seed. By letting the flower leaves remain in the cup, they are apt to hold the dew and rain, which frequently occasion the whole to rot. As the seed-vessel fills up you may with a pair of scissors cut off the ends of the cup all round, and make a slight incision down it to keep the wet from resting in it. It will ripen toward the end of September, but do not gather it till it is fully ripe, when it will be of a dark brown or black colour.

RAISING SEEDLINGS.—The best mode of raising seedlings is by sowing the seed in pans in April in good sandy soil. Let it be sown half an inch deep. No heat should be used, as it is the cause of their damping off. Too much moisture must not be given, and shading from the mid-day sun must be afforded. Keep clear from weeds, slugs, and green-fly. The latter are easily destroyed by dusting strong snuff over the plants. They may be planted out about the first week in August, in rows about ten inches apart, in good soil. Water them carefully until they have become established.

LAYERING is the next point for consideration. Strip off the leaves to the third or fourth joint from the top. The soil in the

* We take this opportunity to congratulate the London florists on the accession to their number (as nurseryman) of Mr. James Kirtland, who (as amateur) so long enjoyed a leading place amongst the cultivators of the midland counties, and whose name was so honourably associated with the exhibitions of Oxford and Banbury.—Ed. F. W.

pots should be stirred, and fresh added to the depth of about two inches. Take a shoot in your left hand, bend it towards the stem of the parent plant with your forefinger, make the incision about half an inch below the third joint, extending it upwards, then cut half way through the joint, severing the tongue from the shoot. The layer must be gently lowered into the soil, and retained in its proper position by a peg cut out of the common brake fern and dried. Too much earth must not be placed upon the layer, and the more upright the layer itself is the better. In layering, water should be given the day before, and also through a fine rose after shading carefully. The best time to perform the operation is from the middle of July until the middle of August. In about six or eight weeks the layers will be ready to take off; the peg should be drawn out, the layer detached with a sharp knife, and lifted with a flat piece of wood about an inch wide, cut rather thin at the point. The portion of the stem beyond where it is rooted must be removed, and then they must be planted in pairs (two in a pot) in 48 or 54 sized pots. Be careful not to pot them too deep, and do not use a rich soil, but let it be of a light nature. After potting, water them, and let them be placed in a frame on bricks, so as to admit air underneath, and the pots placed upon a good layer of ashes. They should be kept close for a week or ten days, and be fumigated once to destroy green-fly. The lights should then be propped about six inches above the frame, and lowered to about one inch in case of frost, with a mat thrown over, taking care to uncover when it disappears, and in fine weather the lights may be thrown off altogether. During the months of January and February the plants must be kept as free from damp as possible; all decayed leaves must be picked off, and the surface of the soil stirred. Should the weather prove frosty I generally cover the frame over with a mat, and as long as frost lasts I give water very moderately.

POTTING FOR BLOOM.—The best time to repot them is in March. The compost should comprise two-thirds loam from rotted turves, and one-third decomposed cow manure, with a little sand, if the loam does not partake of it. This should be prepared in November, and be frequently turned over during the winter, and be kept from heavy rains. The size of pot I consider best to bloom them in is twelve-inch. There should be plenty of drainage, viz., about two inches of broken crocks, over which spread a thin layer of coarse-riddled dry soil, and then fill the pots about two-thirds with the compost. The next thing is to turn out the plants carefully from the pots they were wintered in. Keep the ball entire, and remove at least an inch of the top soil from each. I have frequently found the aphides in concealment there, and the removal of the top soil clears them away. If the small fibres of the roots round the ball are matted very much, and injured by the frost, I sometimes pare some of them lightly off with a sharp knife, being careful not to cut or disturb the strong roots or loosen the ball of earth. Next place them erect in the centre, if for one plant; but if they are potted two or three in a pot, place them symmetrically as far from each other as from the side of the pot, leaving the plants •

about the same depth in the soil as they were during the winter. If they are largish in the leg or stem, an inch deeper will not be amiss; give them a shake by a lift and a gentle hit upon the ground or potting-bench, to settle the soil regularly in the pots, and to prevent its sinking much afterwards. Water them lightly, but enough to reach the bottom of the pots, and continue to do so regularly as they need it, early in the morning, till the end of May, and after that date water them in the evening and morning if required.

MANAGEMENT FOR BLOOMING.—Having finished the potting, remove them to a sheltered situation, if you have it, where the wind cannot visit them too roughly, as violent winds do more injury to them than anything else they have to contend with.

Those plants that require it may be secured to a small hazel twig, but as they increase in height, they should have sticks about four feet long, pointed at the end, to which the flowering shoots should be tied.

About the middle of June top-dress the soil in the pot with thoroughly-decomposed manure, half an inch thick; this will prevent the soil hardening at the top, the water will sink into it better, and it will add much to the vigour of the plants.

When the flower buds approach their full size, and are just upon the point of opening, they should be tied round to prevent their bursting on one side. They should be then removed to the blooming stage, covered with canvas, or if not possessed of one, some half-inch deal boards must be placed on the sticks so as to shade the flowers. This will keep them in perfection as long as an awning will, but an awning is preferable, as they can be seen in bloom altogether, and the pots do not require water so frequently. When the bloom is past, the covering must be removed. Except in case of seed being saved, the flowering stems must be cut down, the sticks removed, and the operation of layering commenced, at the time and in the way above directed.

I subjoin a list of the best varieties of the present day.

CARNATIONS.

SCARLET FLAKES.—Christopher Sly (May), fine; Sir H. Have-lock (Puxley); Rising Sun (Kirtland); Mrs. Holland (Hardman); Illuminator (Puxley); John Bayley (Dodwell).

PURPLE FLAKES.—Earl of Stamford (Elliott); Squire Mynell (Brabbin); Mayor of Nottingham (Taylor); Premier (Millwood); Florence Nightingale (Sealy); No. 10 (Kirtland); No. 3 (Kirtland).

ROSE FLAKES.—Lovely Ann (Eley); Lord Belper (Eley); Poor Sam (May); Rose of Castile (Headly); Alice (Kirtland); Mr. Martin (Elkington).

SCARLET BIZARRES.—Admiral Curzon (Easom); Dreadnought (Daniels); William Pitt (Puxley); Captain Thompson (Puxley); Sir J. Paxton (Eley); Challenger (Puxley).

CRIMSON BIZARRES.—Tenby Rival (Puxley); Hope (Puxley); Monarch (Puxley); Misnomer (Puxley); Phidias (Puxley); No. 50 (Kirtland).

PINK AND PURPLE BIZARRS.—Falconbridge (May); Shakespeare (May); Captivation (Taylor); John o'Groats (May); Sarah Payne (Ward); William Catleugh (Puxley).

PICOTEES.

HEAVY-EDGED RED.—Ne plus Ultra (Headly); Mrs. Norman (Norman); Favourita (Kirtland); Countess of Wilton (Kirtland); Mr. Lachner (Turner); Exhibition (Elkington).

LIGHT-EDGED RED.—Eugenie (Turner); Mrs. Reynolds Hole (Turner); Miss Holbech (Kirtland); Ada Mary (Smith); Duke of Wellington (Turner); Lauretta (Smith).

HEAVY-EDGED PURPLE.—Lord Nelson (Norman); Rival Purple (Headly); John Linton (Headly); Duke of Buckingham (Elkington); Mr. May (Turner); Countess (Fellowes).

LIGHT-EDGED PURPLE.—National (Kirtland); Amy Robsart (Dodwell); Princess of Wales, ex. ex. (Kirtland); Eliza (Payne); Rev. G. Jeans (Kirtland); Neah Robinson (Kirtland).

LIGHT-EDGED ROSE.—Rosy Circle (Payne); Bertha (Warris); Lucy (Taylor); Mrs. Taylor (Taylor); Mrs. Sewell (Kirtland); Rev. H. Matthews (Kirtland).

HEAVY-EDGED ROSE.—Flower of the Day (Norman); Elise (Kirtland); Princess Alice (Kirtland); Miss Meeking (Kirtland); Princess Alice (Kirtland); Lena (Kirtland).

CAN PEAT PLANTS BE GROWN WITHOUT PEAT?



HIS is a very important question for persons who live in districts where peat is not to be found; for in common with all such materials, the cost of carriage any great distance is so expensive, that none but the most wealthy can ever hope to use it in any quantity. Peat is of many kinds; that from Wanstead Flats is very different in texture from that dug at Shirley; and these again both differ from Wimbledon peat. Nevertheless, except in the case of a few species of plants of peculiar constitution, any of these peats answer equally well for all the purposes for which peat is required in gardening, and to imitate any of them, therefore, would be a very desirable undertaking. The best bog earth or peat consists chiefly of vegetable mould and siliceous earth, mixed with the roots of brake, ling, and other plants indigenous to such soils. If there be any doubt as to cutting peat on a common, the cultivator of ericas and rhododendrons, etc., may always make sure of securing a suitable material by selecting the soil only from spots on which the native heaths flourish; where these grow the soil is sure to be found more or less peaty or sandy; if very sandy, the addition of any yellow loam in which the brake grows luxuriantly will render it sufficiently nourishing for all kinds of plants requiring peat. It may serve, perhaps, to assist in forming an opinion as to the suitableness of any particular soil required for

peat plants, if we give the analysis of a good sample of dry Bagshot peat:—

| | |
|--------------------------------------|-------|
| Fine Sand | 41·0 |
| Decomposed Vegetable Fibre | 26·5 |
| Flinty Detritus | 25·0 |
| Alumina | 4·0 |
| Oxide of Iron | 1·0 |
| Saline Matters | 1·0 |
| Muriate of Lime | 1·0 |
| Loss | 0·5 |
| | <hr/> |
| | 100·0 |

By this analysis we find that the soil most noted for the perfection to which American plants attain in it consists of about one-third vegetable matter, and two-thirds flint and sand. Travellers by railway may often observe patches of our native ericas growing most luxuriantly on steep inclines, consisting almost wholly of gravel; and on the other hand it is common to find rhododendrons in gardens thriving on what is called “loam;” thus, we may say, the necessity for peat of one particular description is not uniformly urgent, and this allows of greater latitude in imitating it.

The nicest of all points in attempting to grow rhododendrons and ericas in loam is to determine its suitability, for all loams are not equally suitable; and though the trees may live a few years in a material into which they cannot push their hair-like roots, their days are numbered, and they perish at last, having already become scarecrows, and so their death, when it happens, is not lamented. The loam in which Americans may be expected to thrive is one containing a large bulk of vegetable fibre, a considerable quantity of sand, and which when crumbled between the fingers, has a soft, silky feel, crumbling readily to powder, and not becoming pasty when wetted. There is a bright auburn-coloured or hazel loam at Wanstead of this description, which is used by all the nurserymen on the east and north of the metropolis, and considered by them the most nourishing soil known. Rhododendrons and azaleas grow with such luxuriance in it, that unless the position in which they are planted happens to be extra dry, it is advisable to mix with it a large proportion of poor peat, sand, or flint stones, otherwise the shrubs do not flower freely until they have been several years planted, and have exhausted the fatness of the soil in a rampant growth. Some idea of the excellence of this soil may be formed from the fact that hybrid rhododendrons planted in it have grown from fifteen inches to near five feet in diameter in three years, and are so dense that there is not space anywhere about their superficies into which the hand can be introduced. The luxuriant growth of rhododendrons in this loam is another proof that peat is not essential.

When neither loam nor peat can be obtained, the best possible material for heaths and Americans can be generally obtained by slicing the turf in a thin crust from the surface of a waste or common. Turf stripped from a sandy common may be chopped up and used at

once without any previous stacking up to rot the fibre, though if stacked for twelve months it will be better than if used green. In removing the turf for this purpose the workman should not cut it as if for laying down to form a lawn, but should chip it up with the broad end of the pick, so that it comes off like felt, and with very little earth attached to the roots of the grass. Turf taken from a clay soil will suit equally well, if the turf is old, as it will then consist chiefly of vegetable matter, but this turf will require to have an equal, or nearly equal, bulk of sharp sand added to the whole. This should be thoroughly well chopped up, and when the bed is made, it will be well to cover it with a layer of pure sand two or three inches deep. We have constantly followed this practice in laying out grounds in districts where peat was attainable; and have, in fact, never found any difficulty in establishing hardy peat plants in beds formed entirely of turf, giving the preference invariably to the old turf of a poor common to that from a fat meadow, though even this last is acceptable if it is an old sward, and can be mellowed by the addition of sand.

Another excellent and almost perfect substitute for peat is leaf-mould. But to use this requires more care than is usually supposed, and through lack of this necessary care, many good collections of rhododendrons have been injured beyond recovery. The fact is that when large quantities of leaf-mould are required for making up rhododendron beds, there is a great temptation to use much material in a state of only partial decay, and consequently there often occurs an outbreak of the mycelium of fungi, which, attacking the roots of the shrubs, causes disease, and in some cases ends in their death. If a sample of half-decayed leaf-mould be submitted to careful examination, it will be found to contain a large proportion of woody sticks, such as twigs of trees, etc., etc. Perhaps adhering to these may be seen some suspicious white cottony threads, and these threads are the mycelium, and wherever that occurs in the soil, the roots of living trees are placed in jeopardy. It is for this reason, if for no other, that leaf-mould should always be used with caution, but considering how gardeners allow old shoes, iron-hoops, worn-out coal-skuttles, and other household refuse to get into their muck-pits, the wonder is that leaf-mould is ever fit for any useful purpose—certainly, if it is worth saving at all, it should be kept in as clean a state as possible.

But supposing the leaf-mould to be thoroughly rotted to powder, it may be used as the principal part of the staple for artificial peat. Add to it one-third or one-fourth of its bulk of sharp sand, and the like quantity of dung rotted to powder, and any kind of Americans will grow in it admirably. The remark just made in reference to the necessity of leaf-mould being thoroughly decomposed, applies with equal force to the dung; if it is not in the condition of dust, say three years old at least, it will do harm, but when rotten dung of that age can be obtained, it is a very valuable addition to a compost intended for peat plants, if used in moderate quantity.

There is yet another way of making a substitute for peat. Clearings of old hedge-rows, where leaves have been heaping and decay-

ing for years, chopped moss, sand, and a small proportion of thoroughly-decomposed dung will make a tolerably good mixture, but there is this objection to its use, that the predominance of half-decayed sticks in it is likely to lead to the development of mycelium. Where rough materials of this kind can be got in bulk, it will be best to char all the coarse woody portions. This is a sure preventive of mycelium.

Lastly, where the staple is a siliceous sand, the addition of any sweet vegetable mould in moderate quantity will render it suitable for American shrubs. There are many good hybrid rhododendrons, as for instance, the *Gem*, a fine blush flowering variety in Mr. Standish's collection, that will grow in a bed of pure sand. But the place must be poor indeed if chippings of turf and decayed leaves cannot be had to enrich the soil sufficiently for the purpose. In the case of planting a soil unusually poor, as one consisting chiefly of sand, for instance, we should advise mulching the surface early every spring with rotten cow-dung. This would contribute to the free growth of the trees, and yet not act as a stimulus.

It is generally known that American shrubs, and, in fact, peat plants generally, detest the salts of lime. Any soil or compost containing an appreciable proportion of lime or chalk is unfit for peat plants, and should never be used.

S. H.

THE BEST VARIETIES OF GARDEN STOCKS.



It is generally understood that the best seeds and varieties of Stocks are annually imported from Prussia. The large demand made upon the growers in that country has induced them to offer almost endless varieties, giving them every imaginable name, so that in many cases the purchaser will have a distinction in name only. To assist the amateur especially, and also those of the gardening fraternity who are not so well used to German lists as myself, has tempted me to pen these few remarks. We first take in hand Stocks. On referring to a celebrated German grower's list, I find he enumerates nine distinct classes of Dwarf Ten-week Stocks, calling some miniature, others perpetual-flowering, large-flowering, loose-flowering, etc. Out of these nine classes, only two are really distinct enough for us to trouble ourselves with, and these are the *Dwarf German* and the *Wallflower-leaved Ten-week Stocks*. Of the first they offer thirty-six distinct colours, embracing all shades from brick-red to white and sulphur; and to those who can afford to buy the large packages I say by all means have them; but the packets of twelve varieties will be the most serviceable to our readers as a body, as the price of the twelve will be some 2s. 6d., and for this sum, with a little care and management, you will have such a display as will gratify not only yourself, but all your friends. To those who cannot afford to purchase a 2s. 6d. packet, the mixed seed will be the best, as the German growers save it in this way, and you will get a nice packet for 1s., only you run the risk of having less variety in the

mixed than in the named packets, and if you wish for more variety, then purchase a packet of the Wallflower-leaved, the only difference being that in this variety the leaves are smooth and shining, similar to the common Wallflower. But if you want a Scarlet Stock, you must not rely upon imported seed, as all their scarlets are *brick-reds*. Why this is the case, I am unable to say; but I have never been enabled to get a scarlet Stock like our old Scarlet Ten-week from Germany, so that for this (the scarlet) you must depend upon *English-saved seed*; and if you buy from a respectable house, you will doubtless get a good per-centage of double flowers.

Other varieties of Stocks offered by the German seedsmen are autumnal, or, as we call them, intermediate. They are certainly very pretty, and they offer twelve varieties, very useful in the autumn for bouquets. If, however, you want the real *old Intermediate or Autumnal Stock*, you must buy English-saved seed. There are two varieties of the scarlet, both very excellent; then there is the white, also the purple. If you obtain these three colours, they will, I think, supply all you require. The scarlet intermediate is the kind grown so extensively for the London market for spring decoration.

The next varieties we come to are the *Emperor Stocks*, and they are certainly very useful for cutting for bouquets, being very similar to the old-fashioned *Queen Stocks*. Amongst them will be found some brilliant colours.

We finish with Winter or *Biennial Stocks*, called by us *Brompton* or *Giant*. I have seen spikes of the scarlet two feet long, and as double as a ranunculus, but then the seed was English saved; and if you wish these good, you must rely upon English seed. The scarlet and white are the most useful, as the purple generally produces very few double flowers.

I see the German lists have also *Cocardian*, or *Tree Giant Cape Winter Stocks*, and also *Winter Stock early flowering*, but these can only be placed to swell the list. I will say, buy therefore only *Dwarf German Ten-week Stocks*, imported seed; *Scarlet German Ten-week Stocks*, English seed; *Intermediate Stock*, English seed; *Giant or Brompton Stock*, scarlet and white, English seed; *Emperor Stock*, imported seed. These will embrace every shade of colour obtainable, and will furnish any garden with a constant display of bloom. W. H.

HOW TO GROW FINE CELERY.



IN many gardens celery is more or less of a failure every year. It is either small, or hollow, or of bad flavour, or it perishes just at the moment it is wanted, through frost, wet, wire-worm, or some other plague. Yet it is an easy matter enough to grow celery of the finest quality, provided the soil is tolerably good, and suitable manure can be obtained for dressing it. One of the first points to note in the practice is this, that many of the failures are the result of the seed being sown *too early*. The later stages of the cultivation must be

carried out in the open air, consequently the in-door preparation of the plant must be timed so that it will be ready for planting when the season is suitable to its growth. In gardens where vegetable culture is carried to great perfection, peculiar plans are adopted for producing celery fit for table at an earlier period than ordinary, and plants from sowings made at the beginning of February are got out while the weather is still too cold for it, and to make amends, the beds are formed over fermenting material, and protection is given above by means of glass frames and matting. What I intend to deal with now is the cultivation of celery with no such peculiar aids; and the system of early sowing must be condemned for this reason, that the plants are advanced to a size fit for planting out before the season is sufficiently advanced to be favourable to growth, the consequence is a *check*. Now, a check is as injurious to celery as to balsams, asters, and many other plants, which, it is known, never recover from it. Plants kept a long time starving in seed-boxes are so weak when planted out, that for several weeks afterwards they actually grow smaller instead of larger, as many readers of this will remember to have been the case with their own crops. When at last these ill-used plants recover, they grow in a miserable manner, the stems are stringy and hollow, many of them run to bloom, and are quite worthless; and as for stout, succulent, handsome heads, they can only result from good cultivation.

For all general purposes, where there is no intention to snatch an early supply by a half-forcing process, the middle of March is soon enough to sow the seed. It should be sown in pans or boxes, in light rich earth, the seed to be scattered thinly on the surface, and be very lightly covered with very fine soil. If the soil is of a proper degree of moisture in the first instance, no water will be needed till the plants are up; the retention of moisture and the germination of the seed may be promoted by laying a sheet of paper over the seed-pan, or a board or tile may be laid on it, care being taken to remove it the instant the seed begins to sprout. A gentle heat is needful to bring up the plants nicely; but a strong heat is not required, and, in fact, is injurious. But if there are no means of starting it with heat, it will come on very well kept in a frame or greenhouse, in the full sun, but screened to prevent evaporation. It is one of the advantages of sowing the seed later than is generally done, that there is less need of artificial heat to start it into growth.

When the plants have two rough leaves each, it is advisable to draw out a few with the aid of a bit of stick, and pot them singly in thumb-pots, in a mixture of equal parts friable loam, dung rotted to powder, and with an addition of sharp sand. These may be placed in a frame, and must, of course, be shaded, and rather tenderly cared for during the first few weeks. A hundred or more plants may be potted in an hour, and, if carefully treated, these will give an early supply of fine heads. The object of the cultivator should be, by good cultivation, to make these selected plants overtake other people's that were sown early in order to be kept starving in the seed-pans.

The remainder must be pricked out as soon as they are as large in

the head as the head of a young radish—say having four or five leaves each. The way to prick them out is to prepare first a frame, next tread the ground hard where it is to stand. On the hard surface lay turves, grass side downwards, and on the turves spread three inches of quite rotten dung and fine loam, equal parts, well mixed together. On this bed plant them in rows carefully; water, put on the light, keep shaded and rather close till they begin to grow; then take the light off during the day as much as possible, taking care to put it on in case of cold rains, or snow, or frost, all of which are possible even up to the middle of May.

The plants that were potted will have to be dealt with according to the weather, and other circumstances. They will soon fill their pots with roots, and when they do so—better, indeed, *before* they do so—shift them into 60-size, with one rather flat crock only in the pot, the soil half dung and half loam, and keep them in a frame, giving plenty of air and water, and exposing them fully to sunshine. By the time they fill these pots with roots, the season will be sufficiently advanced to allow of planting out; and this, like all other processes, must be done with care.

The trenches should be made in the usual way, by throwing out the earth. A liberal allowance of fat manure should then be wheeled in, and the soil of the trench well chopped up with it, so that earth and manure are thoroughly blended together. It is astonishing the difference it makes to such plants as celery, cauliflower, and others that need abundance of manure, whether it is turned in anyhow, so as to lie in masses, or well chopped over, and mingled with the soil: in the latter case the growth is regular and good; in the other it is irregular—a plant here abominably coarse, and overtopping the next, which is as weak as if the ground had never been manured at all. For the planting choose warm, moist weather, if possible; if this cannot be done, water the trenches liberally the day previous to planting, and after planting water again, and shade from mid-day sun. In the planting process the line should be put down, and the plants should be handled with as much care as if they were worth a crown each. Let them be turned out of the pots without bruising them; the ball of roots need not be disturbed, the earth must be closed upon them neatly, and while the planting goes on they must not be left laying about in the hot sun, to be half roasted.

Those pricked out into the bed should be dealt with in a similar manner; but of course they will not be planted out so soon. In taking them out of the bed, it will be found, that as they are well rooted into the turf, the bed itself can be cut into squares or strips; and if these squares or strips are carried carefully to the trenches, the plants may be transferred to their final places without damage to a single leaf or root fibre, which is the proper way; the plants ought not to know, in fact, or indicate by any of their appearances, that they have been shifted.

As it was not intended to write a complete essay on celery-growing, I have to hope these few notes will suffice. Any respectable work on the kitchen-garden will furnish particulars, to make good any omissions in this paper, which is intended to supplement,

and not supersede, what else has been written. But it may be as well to add, that celery loves water; and to make sure, after all the preliminary work, that it shall come right at last, water must be given in abundance during dry, hot weather. The best time is evening, and the only way likely to be beneficial is such a dose as will completely soak the ground to and below the roots. As for the earthing-up, defer that as long as possible, remembering that celery cannot be nicely blanched in a less period than five weeks, and that therefore it will not be creditable to the cultivator to put it on the table until it has been moulded-up at least a month or more.

In selecting varieties to be grown for home use, avoid all those called "gigantic," "mammoth," etc. You want beauty and flavour, not mere size, and all the larger kinds are more or less deficient of flavour. The following are first-rate:—*Turner's Incomparable Dwarf White*, *Carter's Incomparable Dark Crimson*. Both these are dwarf, solid, and well-flavoured, and have a most elegant appearance on the table. The following are also good:—*Sutton's Superb Pink*, which grows large and handsome; *Cole's Crystal White*, also large, handsome, and does not readily run to seed.

In case of the fly attacking the growing crop, and which is readily detected by the blistered appearance of the leaves, sprinkle with dry soot or fresh lime, at day-break, while the dew is on the leaves.

Brixton.

W. B. B.

CULTURE OF LILY OF THE VALLEY IN POTS.



THIS plant being the most beautiful of all fragrant hardy British herbaceous perennials, and within the reach of the cottager as well as the aristocracy of its native land, its easy cultivation enhances its value, and should ensure for it all the esteem and care which it deserves. For bouquets, button-holes, dinner-table decoration, cottage-window, conservatory, and garden border, its flowers are never out of place. You find them at the marriage festivities, at the christening, and we lay them on the bosoms of the beloved dead. The long season during which the flowers may be had—namely, from December to May—affords a special reason for the extensive cultivation of this valuable plant in pots, on which subject I will now offer a few remarks. It is not particular as to the aspect in which it is placed or planted, but does not like to be too much shaded with trees, or roasted too much in a walled garden by the reflection upon it of sun-heat. The soil should be light and sandy, trenched two feet deep, digging in plenty of good rotten cow or horse manure and leaf-mould. Plant four rows in a bed, in patches of twelve or eighteen crowns to a patch (each patch in a circle of six inches), about eighteen inches from clump to clump, and two feet from row to row. Take care to plant them diagonally, thus—

. . .
 . . .
 . . .

Do not bury the crowns above half an inch, as they will not ripen well if buried deeply. The best time to plant is October or November, but they may be planted any time from October to March. After they begin to grow in the spring, keep the surface well hoed and open all summer; and before the hot weather sets in, lay an inch of long dung between the rows and plants, so as to keep the soil from getting too dry. When the hot weather sets in, water well twice a week in case the weather is dry, taking care to saturate the border a foot or two deep, to persuade the roots to go down after the dung; but if you only sprinkle the top over, the roots will come up to the surface, and the heat of the sun will kill them, so that when you want to take up your patches in the autumn, they will have but poor weak crowns instead of good strong ones. When the leaves die down, they may be taken up and potted in as small-sized pots as the patches can be got into. Use light, rich, sandy soil, well drained, and plunge the pots in coal-ashes or sand out of doors until wanted to start. They may be started at 50° in October, and gradually raised to 70° to get them into bloom in December. In February or March they can be got into flower in three weeks by placing them in a temperature of 65° to 70°.

A few of the leading nurserymen (Veitch of Chelsea, and Low of Clapton) have imported them from Holland for the last few years, from their bulb growers, all ready for forcing, in very fine condition, and the quantity imported increases very largely every year. It strikes me that they may be grown as well in England as on the Continent, if they are well cared for. They want a year's rest after forcing, and they are all the better to stand a couple of years before you pot them, for they gain strength, and can be got in flower earlier. It is bad policy to grow them in pots a season before forcing them, as you derive no benefit from it. If you have not got good crowns to start with in the autumn, you must not expect any flower. They do not stir at the roots until after the flowers are thrown up. The flowers should show up the first, and then the leaves follow; it is rather difficult to induce them to throw any leaves in the autumn at all. You may get from twelve to forty-five spikes on a good patch of plants in a 32-sized pot, with from eleven to thirteen bells on a spike. The leaves and spikes may be set out at equal distances when in flower with a bit of moss of any kind; if green, all the better.

WILLIAM HOWARD,

Bedford Hill House, Balham, S. Gardener to James Brand, Esq.

TO MAKE PEPPERMINT WATER.—As distilled cordial waters are now somewhat difficult to procure, a strong and useful water may be made by dissolving twelve or fifteen drops of essential oil of peppermint in six drachms of spirits of wine, pouring it into a quart bottle full of cold water, and then letting it stand corked, and occasionally shaken, for a few days. Should any particles of oil appear floating on the top, the water should be filtered through a conical fold of white blotting-paper, a teaspoonful of magnesia being first put into the filter, then place the filtered water in a clean bottle and keep well corked. Dose, a wineglassful.

HOTBEDS.



HOTBEDS claim a considerable portion of the gardener's attention. For raising seedlings and propagating small plants they are invaluable. The cucumber and the melon could not be grown to the extent they are without them. With what interest the young gardener—ay, and the old gardener too—watches from day to day the rapid growth of his plants, and astonishes his friends with the wonders to be accomplished by means of a properly-managed hotbed. There is something about dung-heat particularly suited to the purposes to which it is put; the steady moist heat and the ammonial exhalation are not easily imitated by other means. These facts are well known to experienced gardeners; but there is no reason why there are not those in the world who may not be thoroughly acquainted with them, and possibly a word respecting frames and hotbeds may be as useful now as when Abercrombie and others penned their directions for growing cucumbers and melons.

Among the necessary operations, the first is to get the material, and plenty of it; less than a two-horse load is of little use, and the more the better. Another important condition is to get it in time—not less than a fortnight before it is intended to make the bed or beds. If a large quantity is obtained, have it a month before making it into beds; the reason of this is that fresh stable dung heats violently for a time, but soon cools if not turned over. It is of the first importance that the dung should be turned over with a fork once every four or five days for a fortnight at least. Where it presents any appearance of dryness, let it be wetted gently, not drenched with pails of water thrown on it, which would wash out much of its most useful property. The result of this preparation is, the material acquires a shortness and consistency adaptable to the maintenance of a steady, lasting heat, which would not be obtained without it.

In forming hotbeds, it should be borne in mind that, for the culture of cucumbers, melons, and for any such purposes, nothing can surpass solid beds made in the true orthodox fashion; that is, measure the length and breadth of the frame, mark out the ground for the bed, allowing a foot each way beyond the measurement of the frame, to insure the frame resting upon it, then drive a stake firmly into the ground at each corner; these will serve as a guide. Then proceed to build the bed, shaking the dung well out as it is laid, beating it down with the fork; and remember that this process should not be hurried over; if it takes longer to do a thing well than it does to do it anyhow, that time will be found to be well spent in the long run; do the work carefully, if you would avoid the risk of failure at first starting. Having built up the bed (which, if done before April, should be about four feet high), it is not advisable to put on the frame the same day, as any sudden weight causes a sudden rise in the temperature; but in case of heavy rains, which would cool the bed considerably, it should be covered by some means,

either with straw litter, mats, or a tarpauling. The second or third day the frame may be put on, the fourth day a bushel or so of soil may be put in a hill under the centre of each light, and the fifth or sixth day the seeds may be sown or the plants put in. If all has been managed as described, everything will go on satisfactorily. But the present object is not to describe the whole process of growing cucumbers or melons, or any such plants, but to give a few hints on making hotbeds for different purposes.

For the propagation of plants and raising seedlings, it is possible to economize the dung or heat by adopting different methods of forming the beds. I have heard and read of various ways of doing this, but the first of those which I am about to describe I have seen nowhere practised but where practised by myself, nor read of except where described by myself, so that I may be excused in presuming it to be original.

In the first place, make some fagots of brushwood, and build with these a pit on which the frame may rest; this pit, the walls of which are made of the fagots, should be about four feet high, so that with the frame on it is about the height of a man; the fagots are pinned to the ground with stakes, after the frame is put on, so that it may not rest on them; this allows the frame to sink with the fagots into the pit thus formed. The dung is thrown in after it has been well and thoroughly prepared, as previously described, filling it up to the glass, as it sinks considerably, which must be allowed for. When outside linings are applied to a bed of this kind, the heat from them is much more immediate and effective; it penetrates the brushwood quickly, and increases the heat sooner than if the bed were solid. Another advantage is, the pit remains two or three years; it is merely necessary, after being used one season, to dig out the old dung, and apply fresh inside and out, so that the first trouble is the greatest.

The following I have seen but once practised before I adopted it, and have seen it nowhere else, and may presume that it is not generally known. Lay the foundation as for an ordinary bed, but in building it up leave the centre hollow, in the form of the letter V. When built to within six inches of the top, lay some drain-pipes across, then build up the bed about three inches above the pipes, and lay some rough boards across, over the hollow; on these rest the frame. Over the boards lay tan, ashes, or small short dung, on which the pots are to rest or be plunged in. The pipes (which should be about four or five at the back and the same at the front, placed equidistant from each other) must be plugged up at first, but opened when lining is applied, as they are to conduct the heat from the linings into the heart of the bed. In the propagation of plants, etc., these forms will be found of great service to those who have much to do in that way.

F. C.

NEW PLANTS.



LÆLIA GRANDIS (*Bot. Mag.*, t. 5553).—In general habit and aspect, the flower of *Lælia grandis* is undistinguishable from the *Cattleyas*, to which—but for its eight pollen masses—it would be at once referred. It is a fine species, with stems under a foot high, narrow at the base, but swollen above, and bearing a solitary rigid leaf. The peduncle is two-flowered, the sepals and petals nankeen-coloured, the lip three-lobed, whitish, with purple veins.

LILIUM FORMOSUM (*L'Illustr. Hort.*, t. 459).—Liliacæ. This is a very doubtful species, but whatever its position and affinities, it is a fine subject for cultivation, and the name will serve for horticultural, if not for botanical purposes. It is of Japanese origin, and has the same habit of growth as most other liliiums from that country. The flowers are large and very richly coloured, the ground colour being orange, heavily overlaid with stripes of orange red and chocolate.

CAMELLIA CONTESSA PASOLINI (*L'Illustr. Hort.*, t. 461).—A medium-sized flower, finely-formed, imbricated. The petals slightly lobed, the colour deep flesh, striped and shaded with dull red and reddish fawn.

SPARAXIS PULCHERRIMA (*Bot. Mag.*, t. 5555).—Iridacæ. One of the loveliest species of a well-known and



LÆLIA GRANDIS.

popular genus of Cape bulbs. It was introduced from the district between the Keiskamma and Buffalo rivers, on the eastern side of Southern Africa, by Messrs. Backhouse and Son, of York, and by them flowered in October last. It is of most graceful habit, somewhat resembling *S. pendula*, from which it differs in its larger growth, and the campanulate form of the perianth, which is of the richest rosy purple colour, shaded before expanding with rich blue.

THEBAUDIA CORDIFOLIA (*Bot. Mag.*, t. 5559).—Vacciniacæ. A handsome branched shrub, bearing short-tubed bright red flowers. It is a native of the Alpine regions of the Andes of New Granada and Ecuador. It was originally exhibited by Mr. Bateman under the name of *T. ocanensis*, but has since been identified with, the *T. cordifolia* of Kunth.

EULOPHIA EUGLOSSA (*Bot. Mag.*, t. 5561).—Orchidacæ. A singular, but unattractive plant from the Old Calabar river. It is terrestrial in habit, the pseudo bulbs are long and tapering, the flowers green, with purple spotted lip. As it is a native of one of the most sultry regions of the earth, it requires a good heat to grow it well.



SPARAXIS PULCHERRIMA.

TILLANDSIA XIPHIODES (*Bot. Mag.*, t. 5562).—Bromeliacæ. A small rigid

stove herb, native of Buenos Ayres and the bases of the Cordilleras. The leaves are subulate, and grow in a rosulate tuft; the flowers are produced in a many-flowered spike; they are snow-white and deliciously fragrant.

INULA SALICINA (*Journal of Botany*, t. 43).—Compositæ. This species of *Inula* is well known to botanists as a native of various parts of France, Italy, Switzerland, Germany, and Scandinavia, but there is no recorded instance of its being met with in the British Isles until discovered by Dr. D. Moore, F.L.S., at Lough Derg, Galway, in August, 1865. It is a plant of no beauty, and is scarcely of any importance to botanists.

DIDYMOPLEXIS PALLIDA (*Journ. Bot.*, p. 40).—In a notice of this plant, by S. Kurz, Esq., of the Botanic Gardens, Calcutta, the following synonymy is given:—*Epiphanes Javanica* (Blume), *Gastrodia* (?) *Javanica* (Lind.), *Didymoplexis pallens* (Griff.), *Arethusa ecristata* (Griff.), *A. Bengalensis* (Herb. Calcut.), *Apetalum minutum* (Wight).

A SELECTION OF THE MOST USEFUL VEGETABLES.

ASPARAGUS.—Many varieties are offered, but they really differ so little that they may be set down as of equal value. It is the growing which makes the difference.

BEET.—Covent Garden Red, Henderson's Pine Apple, Whyte's Black. The Spinach beet is a fool's vegetable, because it is not good, and is only plentiful when there ought to be abundance of vegetables of better quality.

BRUSSELS SPROUTS.—Roseberry and Scrymger's Giant.

BEANS.—Mazagan, Minster Giant Longpod, Taylor's Broad Windsor, Green Windsor.

KIDNEY BEANS.—*Dwarf*: Perkin's Early Warwick, Sion House, Early Six Weeks, Newington Wonder, Flageolet. *Runners*: Carter's Champion, White Dutch.

BORECOLE (or KALE).—Cottagers, Green Curled Scotch, Selater's New Cabbaging, Albert Sprouts, Fearnought.

BROCCOLI.—*To cut in December, January, and February*: Snow's Winter White, Early Penzance, Adam's Early White, Hampton Court, Dalmeny Park, Dilcock's Bride. *To cut in May and June*: Conning's Reliance, Foster's Champion, Richmond Late, Miller's Dwarf, Basket White, Cattell's Eclipse. *For cutting in September, October, and November*: Walcheren, Dancer's Pink Cape, Grainger's White, White Cape.

CARROT.—*For gardens*: Long Surrey, Intermediate, French Short Horn. *For farm and allotment grounds*: Belgian White, Belgian Yellow, Selected Altringham.

CABBAGE.—Kemp's Incomparable, Tom Thumb, Brunswick, Sutton's Imperial, Rosette Collard, Enfield Market, Dwarf Early York, Atkinson's Matchless, Green Curled Savoy, Early White Savoy.

CAULIFLOWER.—Stadtholder, New Mammoth, London White, Walcheren, Late German.

CUCUMBER.—Hamilton's Volunteer, Kirklees Hall Defiance, Swadling's Berkshire Challenge, Carter's Champion, Cnthill's Black Spine, Lord Kenyon's Favourite, Mill's Jewess. Usually black-spined cucumbers are most handsome, but less in size and productiveness than white-spined kinds.

CELERY.—Cole's Crystal White, Sutton's Solid White, Sutton's Superb Pink, Cole's Dwarf Red, Incomparable White.

ENDIVE.—Green Curled, Batavian, Moss Curled.

LETTUCE.—Berkshire Brown Cos, Sutton's White Cos, Black-seeded Bath Cos, Tom Thumb, Vosey's Nonesuch Cabbage, Ne Plus Ultra Cabbage, Hammersmith Cabbage.

MELON.—Beechwood, Carter's Excelsior, Egyptian Green Flesh, Garibaldi, Snow's Hybrid Green Flesh, Trentham Hybrid, Turner's Scarlet Gem.

ONION.—Reading, White Globe, James's Keeping, Globe Tripoli, Deptford, Nuneham Park. The last is a profitable and remarkably handsome sort, offered for the first time this season by Messrs. James Cutbush and Son, of Highgate. It can be

safely recommended as surpassing in appearance, quality, and keeping properties, all the old varieties.

PEAS.—*First early*: Sutton's Ringleader, Sangster's No. 1, Early Emperor. *Second early*: Eley's Essex Rival, Dickson's Early Favourite, Princess Royal. *Main crop*: Champion of England, Paradise Marrow, Veitch's Perfection, M'Lean's Wonderful. *Late*: Ne Plus Ultra, Knight's Dwarf Green, British Queen. *Best four varieties*: Early Emperor, Princess Royal, Veitch's Perfection, British Queen. *Six good kinds, all dwarf growers*: Sutton's Ringleader, two and a-half feet; Bishop's Long-podded, two feet; Princess Royal, two and a-half feet; Gilson's Glory, three feet; Yorkshire Hero, two and a-half feet; Knight's Dwarf Green Marrow, three feet.

POTATOES.—Sutton's Early Racehorse, Myatt's Ashleaf, Daintree's Early, Milky White, Queen of Flukes, Pink-eyed Fluke. These six sorts cannot be surpassed for productiveness, quality, and keeping. The following six are also first-rate: Rivers's Ashleaf, Early Shaw, Prince of Wales Kidney, York Regent, Fluke, Webb's Imperial.

TURNIP.—Sutton's Early Short-top, Mousetail White Globe, Red-top Mousetail, Orange Jelly.

THE GARDEN GUIDE FOR MARCH.

FLOWERS OF THE MONTH.—*Greenhouse*: A great many hard wooded plants are now coming into bloom, such as *Chorozema flava*, *scandens*, *varia*, and *spectabilis*; *Acacia armata*, *spectabilis*, *rotundifolia*, *dealbata*; *Boronia pinnata*, *latifolia*; *Hovea purpurea*; *Callistemon rigidum*, *speciosum*, *semperflorens*; *Bossiaea ovata*, *tenuicaulis*, *cordifolia*; double-flowering Plum, Peach, and Cherry; *Camellias*, *Azaleas*, *Hibbertia flexuosa*, *Cytisus* of various kinds; also *Primulas*, *Cinerarias*, *Cyclamens*, *Echeveria secunda*, and *Pelargoniums* Gauntlet, Crimson King, etc.—*Garden*: *Aubrietia deltoidea*, and others; *Sysirinchium grandiflorum*, *Hepatica angulosa*, *Saxifraga cordifolia*, *Adonis vernalis*, *Pulmonaria rosea*, *Draba azoides*, *Viola odorata*, *Viola collina*, *Fumaria cava*, *Ranunculus ficaria*, *Potentilla fragaria*, *Anemone pulsatilla*, Snowdrops, Crocuses, various; *Narcissus nanus*.—*Frame*: *Dielytra spectabilis*, *Cyclamen Europeum*, *Cyclamen coum*, *Bulbocodium vernum*, *Erica herbacea* and *codonodes*, Russian and Neapolitan Violets, *Leucojum vernum*, *Erythronium dens canis*; various *Narciss*, *Jouquil*, and other bulbs.—*Ericas*: *Aristata major*, *aristata vittata*, *acuta*, *humeana*, *pomifera*, *viscaria*, *persoluta alba*, *mandula*, *vernalis*, *acuminata*, *fragrans*, *atrorubens*, *Blandfordiana*, *cerinthoides*, *Bonplandiana*, *purpurea*, *nigrita*, *vestita*, *lacticolor*, *propendens*.—*Orchids*: *Dendrobium nobile*, *D. macrophyllum giganteum*, *D. pulchellum purpureum*, *D. densiflorum*, *D. Pierardii*, *D. aggregatum majus*, *D. Cambridgeanum*, *Phajus Wallichii*, *Trichopilia suavis*, *Bletia patula*, *Lycaste cruenta*, *Cattleya amethystoglossa*, *C. Mossiæ*, *C. Mossiæ aurantiaca*, *C. Mossiæ superba*, *Chysis aurea*, *Cycnoches pentadactylon*, *Phalænopsis amabilis*, *P. grandiflora*, *P. rosea*, *Cymbidium eburneum*, *Cypripedium biflora*, *C. caudatum*, *C. caudatum roseum*, *C. hirsutissimum*, *Vanda cristata*, *Epidendrum crassifolium*, *E. aurantiacum*, *E. Hanburyanum*, *Aganisia pulchella*, *Bolbophyllum saltatorium*.

FRUITS IN SEASON.—*Apples*: Alfriston, K; Ashmead's Kernel, D; Barcelona Pearmain, D; Beachamwell, D; Bedfordshire Foundling, K; Bess Pool, K; Borsdorffer, D; Boston Russet, D; Brabant Bellefleur, K D; Braddick's Nonpareil, D; Bringewood Pippin, D; Brownlee's Russet, K D; White Calville, K; Claygate Pearmain, D; Cockle Pippin, D; Coe's Golden Drop, D; Cornish Gilliflower, D; Court Penduplat, D; Dumelow's Seedling, K; Dutch Mignonne, K D; Federal Pearmain, D; Forman's Crow, D; French Crab, K D; Gooseberry Pippin, K; Hambledon deux ans, K D; Hanwell Souring, K; Holbert's Victoria, D; Hubbard's Pearmain, D; Lamb Abbey Pearmain, D; Lemon Pippin, K D; Mannington's Pearmain, D; Margil, D; Minchall Crab, K; Minier's Dumpling, K; Morris's Nonpareil Russet, D; Newton Pippin, D; Nonpareil, D; Norfolk Beefing, K; Northern Greening, K; Northern Spy, D; Ord's D; Pearson's Plute, D; Pennington's, D; Pile's Russet, D; Pinner Seedling, D; Reinette Blanche d'Espagne, K D; Reinette du Canada, K D; Reinette Grise, D; Reinette Van Mons, D; Rhode Island Greening,

K D ; Ribston Pippin, D ; Ross Nonpareil,^f D ; Royal Pearmain, K D ; Royal Russet, K ; Scarlet Nonpareil, D ; Screveton Golden Pippin, D ; Spring Ribston, D ; Stamford Pippin, D K ; Striped Beefing, K ; Sturmer Pippin, D ; Sweeny Nonpareil, K ; Tulip, D ; Wheeler's Russet, D ; Winter Colmar, K ; Winter Strawberry, K D ; Winter Quoining, K D ; Wyken Pippin, D.

Pears.—D'Avril, Bergamotte Esperen, Buerré Bretonneau, Buerré Gris d'Hiver, Beurré de Rance, Bezi de Bretagne, Bezi de Caissoy, Bezi Goubault, Cassante de Mars, Chaumontel, Colmar, Easter Bergamot, Easter Beurré, Elisa d'Heyst, Fortunee, K ; Groom's Princess Royal, Jean de Witte, Josephine de Malines, Leon le Clerc de Laval, K ; March Bergamot, Morel, Ne plus Meuris, Pengthley, Prince Albert, Rameau, Spanish Bon Chretien, K ; Uvedale's St. Germain, K ; Van de Weyer Bates, Verulam, K ; Winter Franc Real, K.

* * The above lists of apples and pears comprise good varieties, or varieties good for the season, that may be in condition in the month of March. As nearly all kinds of apples and pears of the growth of 1865 ripened very much in advance of their usual seasons, there are probably very few of either class of fruits in English fruit stores available for either kitchen or table. Nevertheless the lists may be useful in such an exceptional season, if only to indicate the varieties that *ought* or *might* be fit for use. It would be rendering a most practical service to pomology, and would therefore be mutually beneficial if our fruit-growing readers would send us a few particulars of their present fruit stores, giving the names of such kinds as are still good, and such also as were in use last month.

Grapes.—Of last year's crop there may yet be good bunches of Black St. Peter's, Barbarossa, Black Hamburgh, and Lady Downe's Seedling. Where grapes are forced, supplies may soon be expected of such varieties as Chasselas Musqué, Muscat Hamburgh, Purple Constantine, Red Frontignan, and White Frontignan.

GARDEN WORK.

Kitchen Garden.—Make new plantations of artichokes, rhubarb, horse-radish, and chives. Plant main crops of potatoes. Pot a few roots of mint, and put in heat for salads and sauces. Continue to force rhubarb, seakale, and asparagus. Get cucumber and melon plants forward. Top dress asparagus and seakale beds. Sow main crops of peas, broad beans, savoy, parsnips, onions, cardoons, and spinach. Sow also small patches of cabbage-lettuce, radish, cauliflower, turnip, broccoli, leek, and parsley ; and in gentle heat, celery, lettuce, and cauliflower.

Fruit Garden.—Grafting should not be delayed, as the sap is now rising. Pruning and cleaning ought to have been completed long ago. If not so, let your motto be, "Better late than never." Burn all the prunings and clippings of trees, hedges, etc., and use the ashes as a top dressing for quarters of bush fruits.

Flower Garden.—Sow hardy annuals in the borders, and a pinch of each in pans and pots. Strike chrysanthemums in heat, for planting out in May. Get dahlias to work and take cuttings. Give plenty of air to auriculas, pansies, carnations, etc., and water freely during bright weather. Give weak liquid manure once a week. A mixture of guano and wood ashes is a good dressing for beds of roses that have not been mulched. Lay it on two inches thick. Plant *Dielytra spectabilis* from pots in rich deep loam. Finish planting roses.

Stove and Greenhouse.—Plants in bloom must be kept cool to prolong their beauty. Give liquid manure, clear and weak, to all plants swelling their bloom buds. Continue to propagate bedding stock, and use a brisk heat to everything intended to be propagated. Get fuchsias into growth by a gentle bottom-heat, and take cuttings for summer and autumn flowering.

Forcing-house.—Start gesnerias, gloxinias, and achimenes, if not done already. Greenhouse, 50 degrees night ; 60 to 65 degrees day. Pines swelling their fruit should have plenty of manure water, and a bottom heat of 85 or 90 degrees. Vines and peaches in bloom must not be syringed. Thin the bunches of vines that have set fruit, and use the syringe freely. Sow tender annuals and place over a propagating tank, or otherwise start in a moderate heat.

NEWS OF THE MONTH.

ROYAL HORTICULTURAL SOCIETY.—On Tuesday, Feb. 13, the annual general meeting took place in the council-room, the Duke of Buccleuch in the chair. The report stated that the number of fellows increases, and there is also a steady increase of subscriptions. The admissions were in 1863, 115,521; 1864, 185,692; 1865, 231,519. The balance-sheet showed that the total income during the past year amounted to £15,407 15s. 3d, of which £7975 1s. 1d. resulted from annual subscriptions, £680 3s. 8d. sale of garden produce, £991 4s. 11d. daily admissions and promenades, £1641 3s. 11d. exhibitions and *fêtes*. On the side of expenditure, which amounted to the same total within about £380 of the whole incomings, the principal items were, for Chiswick, £2102 10s. 10d.; management, £2253 3s. 2d.; exhibitions, £2801 7s.; Kensington Garden, £3150 10s. 6d. The ballot resulted in the re-election of the Duke of Buccleuch as president; G. F. Wilson, Esq., F.R.S., treasurer; and Lieut-Col. Scott, R.E., secretary. The new members of council selected were, Viscount Sandon, the Right Hon. W. Cowper, M.P., and Sigismund Rucker, Esq., in the room of J. J. Blandy, Esq., John Kelk, Esq., and Major Trevor Clarke. Respectful mention was made of the loss the society and the horticultural world had sustained by the deaths of Dr. Lindley, Sir Joseph Paxton, and Sir William Hooker. Among the subjects discussed were the rights of fellows in respect of the International Exhibition to be held in May next, the admission of the public at merely nominal charges at certain seasons of the year, and the privileges of fellows generally. The question whether during the months of August and September the public should be admitted free or at a charge of threepence each was finally left in the hands of the council. The president, by virtue of his office, nominated as vice-presidents for the ensuing year, Earl Grosvenor, M.P., Lord H. Lennox, M.P., W. W. Saunders, Esq., and J. Bateman, Esq.

UNITED HORTICULTURAL SOCIETY.—Having now completed twelve months of its existence, the committee of this society are devoting their attention to the elaboration of a scheme for providing gardeners with pecuniary assistance in seasons of sickness and calamity, and in old age. The scheme will be carefully prepared to ensure perfect safety, and will ultimately be submitted for certification of its legality according to the requirements of the Friendly Societies Act, to Mr. Tidd Pratt. The accounts for the year show that after paying the expenses of formation and all the costs incident to making a new society known there is still a balance in hand sufficient to start the provident scheme in a most promising manner. Our readers will remember that we have explained that all surplus monies resulting from the operations of the horticultural proceedings are, at the end of the year, to be handed over for the benefit of the provident fund, which will no doubt also be augmented by donations from persons anxious to promote the social welfare of gardeners, who will need some such help so long as the present low rate of wages prevails. The dates and places of the exhibitions for 1866 are not yet determined, no doubt they will be held as last year, in the city of London. We do hope, however, that the society will sometimes travel a little, and hold exhibitions elsewhere.

EXHIBITIONS ANNOUNCED.—International Exhibition and Botanical Congress, Kensington, May 22; Royal Horticultural Society, Kensington, March 15, April 12, May 3, June 14, June 28; Royal Botanic Society, Regent's Park, March 17, April 7, April 21, May 9, June 6, July 4. Continental.—Amsterdam, April 14; Ardenaerde, April 29, May 1; Bruges, April 1; Brussels, April 3; Frankfort, March 29; Ghent, March 4; Geneva, April 5; La Haie, April 7; Louvain, April 1; Malines, March 13.

HIBBERD TESTIMONIAL.—The following circular has been forwarded to the Editor with a request for its insertion in the *FLORAL WORLD*. He trusts its insertion will be taken as a proof of his willingness to oblige his friends: "The promoters of this testimonial are anxious to signify their appreciation of the public labours of Mr. Shirley Hibberd, and they respectfully invite the generous co-operation of all who share with them in admiration of the unwearied diligence, independence, public spirit, and ability manifested by that gentleman during twenty years' incessant activity as a journalist, lecturer, and experimental horticulturist. The useful labours to which Mr. Hibberd devotes his time and energies, tending as they do so directly

to increase the sum of human happiness, do not need to be explained or vindicated; were it so, indeed, the present movement would be out of time and out of place. But it is not generally known that Mr. Hibberd has carried out all his experiments and inquiries in horticulture entirely at his own expense, with no public garden or wealthy society to assist him either with subjects, opportunities, or a salary; and it has therefore been at great and continuous personal sacrifice that he has obtained the valuable and original information which has rendered his writings so universally acceptable, and so inestimable a boon to the amateur cultivators of Great Britain. Such, and other considerations, actuate the promoters in soliciting subscriptions, the intention being to make Mr. Hibberd a substantial present, that there may be tangible proof afforded that his excellent motives are understood, and his able and earnest labours appreciated.—JAMES COLDWELLS, Hon. Sec. Communications, subscriptions, etc., etc., may be forwarded to the Treasurer, Mr. JAMES CRUTE, 88, Watling Street, London, E.C.

TO CORRESPONDENTS.

DOUBLE PRIMULAS.—I am an admirer of Chinese Primulas, and have a number of very good ones at present. I would like to bring forward a few *double* ones for next season, and would feel much obliged if you would kindly inform me if they can be depended on to come double from seed. Also where the best seed can be got; when it should be sown; and if the treatment of the young plants is the same as of the single ones. Are the old plants worth preserving, or should the seed be sown every year? In the *FLORAL WORLD* for April last year (p. 76) there is a notice of double primulas grown in eight-inch and ten-inch pots. How old would these plants be? Surely they could not be grown to that size in one season.—*J. C.* [In reply to your first question, we do not think you could depend upon raising double primulas from any seed purchased in the usual way. * Double varieties are raised from seed carefully hybridized; the most successful raisers of these are Messrs. Windebank and Kingsbury, Nurserymen, of Southampton, who, we believe, raised the five varieties sent out by Messrs. Smith, of Dulwich, some three or four years since, and which were great improvements on the old double white and double purple kinds. Messrs. Smith are about to send out another batch raised by the same firm; amongst them are some very beautiful varieties. Mr. Draycott, of Humberstone, near Leicester, also some few years since raised some very fine double purple varieties; the whole stock of these was purchased by Messrs. E. G. Henderson and Son, of St. John's Wood. We heard, the other day, of an amateur grower near Stamford having raised a beautiful double purple from a packet of seed of Russell's Pyramid Primula, advertised occasionally by Mr. Clarke, of Streatham. This, we expect, was a waif; and you might grow thousands before being fortunate enough to raise such a one. The only way would be to get the best varieties, and hybridize them, and save your own seed; the double varieties seed very sparingly, and require artificial impregnation. For further information see article at p. 68.]

EVERGREEN FERNS FOR UNHEATED FERNGHOUSE.—*P. B.*—The following will be found very various in form and character, quite hardy under glass without the aid of artificial heat, and requiring only the ordinary treatment of ferns in general. Those likely to suffer in a severe winter are marked thus *. It may be well to remind *P. B.* that some means of keeping out frost is very desirable; a charcoal stove would be better than nothing during severe weather. *British:* *Asplenium adiantum nigrum*, *A. marium*, *A. trichomanes*, *Ceterach officinarum*, *Lastrea æmula*, *L. dilatata*, *Polypodium vulgare* and its varieties, *Polystichum aculeatum* and varieties, *P. angulare* and varieties, *Scolopendrium vulgare* and about a hundred of its varieties, of which the following are the best—*bimarginato-multifidum*, *contractum*, *cornutum*, *crispum*, *cristatum*, *digitatum*, *glomerato-digitatum*, *laceratum*, *ramo-marginatum*, *ramosum*, *undulato-lobatum*, *Wardii*. *Exotic:* *Adiantum cuneatum**, *Asplenium ebeneum*, *Camptosorus rhizophyllus*, *Cyrtomium caryotideum*, *C. falcatum*, *Dennstædia punctilobula*, *Lastrea atrata*, *L. cristata*, *L. frondosa*, *L. Goldiana*, *L. intermedia*, *L. marginalis*, *L. opaca*, *L. Sieboldii*, *Loma-*

ria alpina, L. Chiliensis, L. Magellanica*, Polystichum acrostochoides, P. falcinellum, P. vestitum, Pteris esculenta*, Woodwardia radicans, W. orientalis, Asplenium bulbiferum*, Pteris flabellata*, P. cretica*, Davallia canariensis*, Platycerium alci-corne*, Todea hymenophylloides (pellucida)*, Phlebodium sporodocarpum*. It would be a pity to omit some of the more characteristic of deciduous species, such as Onoclea sensibilis, Osmunda Claytoniana, etc., etc., they are so exquisitely beautiful in summer. At p. 4 of the January number will be found a list, which may be consulted with advantage.

ORANGE TREES, CURRANT TREES, ETC.—*E. R. F., Faversham.*—The orange trees raised from pips, and now eight years old, ought to begin now to flower and bear fruit. There is no need to graft them, unless you want some particular variety. * Yours will be as useful for all general purposes without grafting. The currant trees you want are only procurable at first-rate nurseries. We obtained a very complete collection a few years since from Messrs. Cutbush and Son, Highbgate, London, N.; no doubt they could now supply what you want. As a rule *Stipa pennata* is most difficult to raise from seed; possibly trade seed is generally bad. If fifty practical cultivators were asked about it, the majority would say that to raise it from seed is out of the question. Your home-grown seed is evidently good; pray send a pinch of it.

BEDDING PLANTS.—*A Clerk.*—We suppose your query to refer to bedding plants, but you do not say precisely. Every kind of bedding plants may be propagated now, and if fairly dealt with, will bloom well when planted. Autumn-struck plants are to be preferred, but spring-struck geraniums, calceolarias, tropæolums, etc., etc., are not to be despised, and, in fact, thousands such are sold every year for bedding. Two requisites are needed: first, the old plants to be cut from must be in a growing state to furnish short, rather soft shoots; next, the propagating bed must have a steady temperature of 70 degrees, whether by fermenting material, hot water, or what else. A bed of mere sand suffices if the heat is right, and there need be no ventilation at all. In case of making up a bed in a greenhouse, as you propose, it will be advisable to employ a common garden frame, so as to shut up the cuttings, and secure to them a different atmosphere to that in the house. A moderate state of moisture will promote rooting without rotting, and if you handle the whole business well, the cuttings will begin to make roots in about ten days after being inserted.

HEATING GREENHOUSE FROM KITCHEN BOILER.—*J. F. C.*—This is not only a possible, but a very advisable proceeding where circumstances are favourable, and is frequently adopted. It is open to the objection that culinary operations are apt to interfere with the uniformity of temperature of the greenhouse, as, in the event of the cook emptying the boiler suddenly, some time must elapse before the cold water with which it is refilled can attain to the previous degree of heat, and during the interval the warmth of the plant house must be affected. Another objection may be founded on the fact that kitchen fires are not, and, generally speaking, cannot be, kept burning all night, and in case of very severe weather the assaults of frost about 4 or 5 A.M. may undo in an hour all the care of a season by freezing up everything in the house when you and your servants are sound asleep. But so far as obtaining a good circulation of hot water, and heat enough for any ordinary purposes, why, it can be done wherever there is a good kitchen fire kept, and the greenhouse happens to be so placed that the pipes have not far to traverse to reach it. To carry it into effect is as simple as any other mode of hot-water heating, but it must be done properly, or not at all. The necessary conditions may be briefly stated. The boiler must be fed by a cistern placed higher than the highest point to which the pipes will rise, but the cold water must enter the boiler at its lowest part. The boiler must be made air-tight and water-tight at top, as well as at the bottom and sides, otherwise it is impossible the water should circulate in pipes rising from it. The flow pipe may be taken from the top or near the top of the boiler, and it must rise all the way round the house slightly; if the rise is one in ten or even one in twenty it may suffice, and in returning it must enter the boiler near the bottom. It will economize labour to make one orifice near the bottom do for the insertion of return pipe and admission of water from feed cistern. At the extreme highest point of the pipe an air tube must be inserted, to prevent explosions through accumulation of air in the pipes.

BERRY-BEARING SOLANUMS.—*Flora.*—We intended to have written an article

on this subject, but, on reflection, believe we can best answer your queries here. The essay on berry-bearing shrubs in the January number will furnish abundant information on the hardy kinds. The cultivation of the scarlet-berried *Solanums* is so exceedingly simple that any one with ordinary appliances and ordinary skill may have as grand a display of them in the autumn as may always be seen in the great conservatory at the Royal Horticultural Society's Gardens. There are several species and varieties which produce red berries; the one commonly grown hitherto has been *S. capsicastrum*; but far better, because it makes a bolder bush and bears larger berries, is *S. pseudocapsicastrum*. To get up a stock of this proceed as follows:—Place an old plant in a warm house, and frequently syringe it. When the young shoots are two inches in length, take them off and dib them into sand in a heat of 60 to 70 degrees. When rooted, pot them in light sandy compost, and give them a moderate heat until they begin to grow. From that time gradually inure them to ordinary greenhouse temperature and to fresh air, so as by degrees to get them quite hardy by the middle of May. Then plant them out in a piece of rich light soil, in the full sun, fifteen inches apart; give plenty of water all the summer, and slightly train them out, so as to form open heads. They will require to be twice stopped by nipping off the points of all the shoots in June, and after that must grow as they please. About the middle of September take them up very carefully and pot them. In this process the roots must be preserved from injury, and as much earth kept about them as possible. When potted, stake them out neatly; shade for a week, and after that keep them in the sunniest part of the greenhouse. If you follow this prescription, let us know in November next how they look. Their appearance then ought to be that of neat shrubs, two feet high and eighteen inches through, completely smothered with bright scarlet berries, full double the size of holly berries.

General V. A. would do well to place an evaporating pan filled with water over the flame of the gas-heating apparatus. But it must be placed sufficiently high above the flame to prevent smoke or soot.

FERNS.—*N. B.*—*Hymenodium crinitum* may be grown well in a greenhouse from the middle of May to the end of September, but it needs more than greenhouse temperature to keep it all winter. It is truly a stove fern, and when it has good stove treatment it forms fronds two feet long and ten inches broad, a most remarkable object, and worth building a stove on purpose to grow it. It will bear more sunshine than most ferns, yet does well in the fern-case if heated, and, as a matter of course, a sunny place should *not* be found for it in either stove or greenhouse. *Gymnogrammas* require careful treatment, and unless they have careful treatment they soon become a disgrace to the house they are in and the person who is supposed to cultivate them. The roots must never be wet and never dry; good drainage, and a considerable proportion of sand mixed with the peat, are indispensable. The fronds also must be guarded against excessive moisture; water must not drip on them, no cold draughts must visit them, strong sunshine is death to them. The best place for them all winter is a rather light stove, where the night temperature averages 50 degrees during frosty weather and 55 to 65 degrees during mild weather, rising by day with sun to 70 or 75 degrees. They may be kept by skilful hands in a lower temperature, and then *dryness* is the secret of success, but such dryness as will not cause shrivelling. In any case, however, the lowest minimum at which they can be kept with safety is 45 degrees.

GRAPES IN GROUND VINERY.—*A. B.*—You might grow Chasselas Musqué and Royal Muscadine very well with Black Hamburg, giving the first a drier border, which is easily accomplished by preparing a place for it, using plenty of broken brick and old mortar in the compost. As for Royal Muscadine, it has no objection to a glass house or a ground vinery; but it will do well in a border of clay or coal ashes, if against a good wall. A certain degree of dryness in the subsoil and full exposure to sun are the first essentials in grape growing. Your proposal to grow vines on a slate pavement in the open air, pegged down, without glass, is ingenious, and in Pembrokeshire, where the climate is mild, may answer well, if you choose the harder kinds. The chance of success will be increased if you put the ground aslant to the south; a very gentle slope will suffice if the roots are in a border well drained, so that excess of moisture will quickly pass away. The heavy rains that usually occur when the berries are swelling would run down the slope, and give the roots extra food at the moment when most needed. It is quite true that, as a rule, Saxi-

fragas require an open position, though there are some (as, for instance, *crassifolia*) which do well in shade. Most of these are mountaineers, that like fresh air and exposure to all weathers. To grow *S. oppositifolia* in perfection it requires to be fully exposed, and to have water frequently poured over it. Because it is usually left to "chance it," and is consequently occasionally burnt up, we rarely see it doing well. It is in the western counties, where rain is more abundant than in other parts of the island, that *Saxifragas* do the best and the British species are most abundant.

A. G. S.—*Oncidium divaricatum*, *Cypripedium barbatum*, *Dendrobium nobile*, *Statice Holfordii*. If bloom is not needed, *Adiantum cuneatum*, *Arundo donax* variegata, *Chamerops humilis*, *Ficus elastica*.

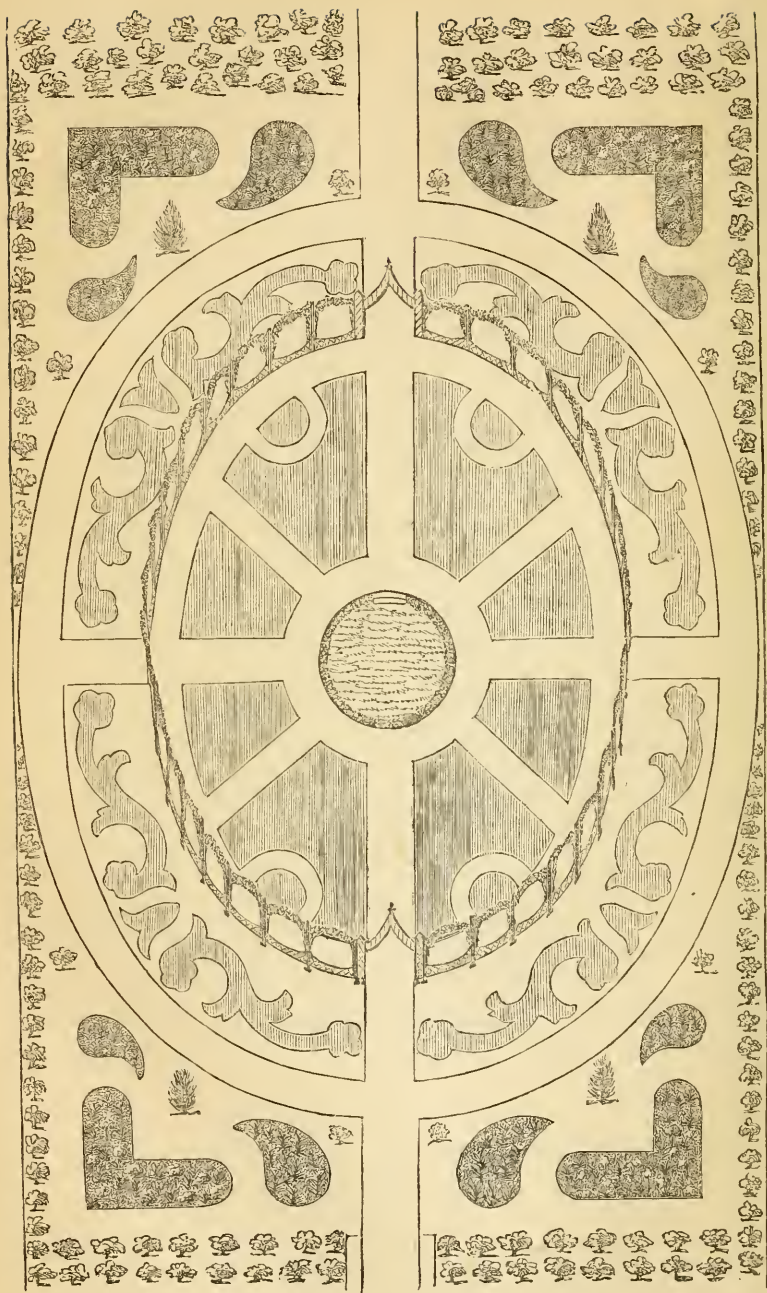
E. M. W.—The Velvet Cushion Verbena, and others of the same series, were sent out by Messrs. E. G. Henderson and Son, St. John's Wood, London, N.W., and are now generally distributed amongst the trade. It and others of the same race were raised at Oulton Park.

IVY.—*Godmanchester*.—The specimen sent is a quite common, though pretty form of *Hedera helix*. This plant has a different character on every different soil, and all the forms may be grown back to one type by a regular course of cultivation; indeed, we have grown dozens of distinct varieties out of character, and made them all alike and all of the normal form by a regular system of experimental cultivation. Your specimen is not distinct enough to be worth a name.

SALE OF PLANTS, ETC.—*R. B.*—It is quite common for correspondents to send us orders for plants, seeds, etc., but such communications are unacceptable, because we have the trouble of returning them, as we neither trade in horticultural productions, nor recommend dealers.

WINDOW PLANTS.—*R. Simson*.—The best way to keep windows and rooms furnished is to bring plants from the pit or greenhouse as they come into bloom, and take them back when the bloom is over or when they begin to show signs of decline. We frequently pass a cottage window where an artisan grows fuchsia Clapton Hero, as a climber. It is in a pot, and the rods are trained up wire or string, so as to make a screen over the upper part of the window, and all the summer it blooms profusely and makes a delightful show. One of the best plants for room cultivation is *Ficus elastica*, the India-rubber tree; it only needs occasional sponging of the leaves to keep it in perfect health. The following are easily managed and like warmth:—*Lomatia elegantissima*, *L. ferrugiana*, *Nerium splendens*, *Dracæna terminalis*, *Aralia Sieboldi* variegata, *Rhopala australis*, *Begonia Fuchsoides*. Many of the finest orchids may be grown finely in a room, but, of course, demand some skill in plant-growing to do them well. The following are most likely to succeed:—*Barkeria Skinnerii*, *Ærides Warneri*, *Calanthe vestita*, *Cypripedium barbatum*, *Dendrobium nobile* and *pulchellum*, *Epidendrum vitellinum*, *Lycaste Skinnerii*, *Oncidium amplicatum* and *divaricatum*, *Sophronites cernua*. Fifty more might be named, but in such a case a short list is perhaps better than a long one.

THE GARDEN ORACLE FOR 1866 is respectfully recommended to readers of the FLORAL WORLD, as an additional right hand, and, if desirable, another head. The Editor has put into it the results of twenty years' observation, experiment, and inquiry in fern growing and general garden practice, in twelve lists of ferns for all possible purposes, an essay on "Fern-Growing Made Easy," lists and descriptions of all new plants and flowers, selections of the most useful subjects in all departments of horticulture, and a very complete calendar of operations adapted for all parts of Britain. The lists of roses, dahlias, bulbs, etc., have been prepared with the greatest care. The price is 1s. Those who do without it are almost as bad off as if they had no bread.



THE FLORAL WORLD

AND

GARDEN GUIDE.

APRIL, 1866.

FORMS OF FLOWER-BEDS.—No. II.

BY MR. HOWLETT.



F following up the subject of flower-garden designs, it will be my object to provide suitable receptacles, or places, for the culture of all classes of plants, including the old favourites, which the mania for bedding plants has almost driven out of cultivation, but for which there is happily a reviving disposition to again foster and receive into favour. In this, however, there appears to be some difficulty. Gardens are laid out in terraces and geometrical parterres, solely with the view to a grand summer display, and very beautiful and artistic such displays are. Nor could I find heart to denounce them; indeed I admire and fully approve them when used judiciously. Who does not? But the whole thing turns upon that one point, the judicious and moderate use of these accessories to our garden furnishings; but like all other good things, they become in inartistic hands too vulgar and common-place to satisfy, and the mind naturally turns for relief to other sources of delight. If "variety is charming," there surely is little charm to be found in many gardens, where every nook and corner is reserved for the well-known lozenges of scarlet, yellow, white, pink, and purple afforded by a dozen or so varieties of bedding plants. It is the immoderate degree to which the thing has been carried, and the consequent lack of charm which the garden presents at all times, except for the few weeks in the season, that is producing a reaction, and demands a revival of the cultivation of classes of plants which have for a long time past been in a measure neglected. Consequently, when laying out or making alterations in gardens, it behoves us to make proper arrangements for all classes. Let us have a fair specimen of the glowing parterre with its summer blaze; also let us have spring flowers, bulbs, half shrubby herbaceous and trailing plants, annuals, biennials, perennials, etc. These latter are subjects which if judiciously planted, will harmonize one with the other, and may be made to constitute the mixed garden. In the subjoined plan the eight large beds in the centre are intended to represent the

compartments appropriated to such things, whilst a tank in the centre of these will afford a receptacle for aquatic plants. If the tank has a margin of broken quarry stone, or flints coloured with cement, a good receptacle will be provided for a few hardy alpinists. The trellis that surrounds this centre garden will afford abundant space for trailing and climbing plants, which are by far too little cultivated. The scroll pattern, which is on grass, will afford space for bedding plants on the ribbon system of planting. The beds filling the four corners of the plan are on grass, and may be used for roses, dahlias, and hollyhocks, American flowering shrubs, or any other class of plants that the gardener may choose to cultivate.

GRAPES FOR THE MILLION.—NO. III.



FIRST-CLASS Table Grapes are supposed to be rarities; and so they are; but by accident, not of necessity. With good walls good grapes may be secured for the dessert, as was shown in No. I. of this series, and as can be proved to demonstration whenever the word of the writer of this is considered insufficient. But suppose there are no good walls, or that the climate is cold, or that other impediments present themselves, then we must resort to the use of glass; and the simplest and cheapest way of making glass available to produce first-class grapes is the adoption of

GROUND VINERIES.

These were first adopted by the well-known "Sigma," and have since been much improved upon, and largely adopted by amateur cultivators. In the first instance a trench was dug; the trench was lined with slates, and was covered with a small glass ridge. The vine was planted in the common soil, at one end outside the trench, and was trained along the centre of the trench under the glass, the bunches being allowed to *hang* in the trench, and receiving heat direct from the sun overhead, and indirectly by radiation from the slates. This answered very well; but experience proved that the simplicity of this contrivance might be simplified. The glass ridge was placed on the level ground, on a row of bricks placed a few inches apart to afford ventilation, and with slates or tiles laid on the ground inside, so that now the bunches *lay upon the slates*, and were there subjected to greater heat than when they hung in the trench, and the consequence was the berries grew to a greater size and ripened more perfectly.

There is no mystery about ground vineries; any carpenter can make them, any amateur, even if a mere beginner, manage them; and they are so far useful for the cultivation of grapes, that by their aid bunches fit for exhibition may be grown in them without difficulty. The chief secret of their efficiency is their power of absorbing and retaining a greater amount of sun-heat than is possible for either wall or exposed soil. Currents of air, which quickly cool the

common soil, are excluded by the glass, which also tends to check radiation, so that within the vinery a better climate is secured than can be in any way obtained without the aid of glass. These vineries are made in various ways and sizes. Some are adapted to accommodate two vines side by side, others for single vines only. The size found most suitable for One vine is 30 inches wide, 16 inches from ground line to ridge, 20 inches slope of roof. For Two vines, 42 inches wide, 20 inches deep, 28 inches slope of roof. The length of such vineries may be indefinite, but for convenience sake they are usually made in 7-foot lengths, and as the vines extend in length additional lengths of glass frames are added; and of course the vines are always kept to single rods, closely spurred in. To appropriate these simple structures to the purpose they are intended for is easy enough. The ground is marked out, and bricks are *laid* a few inches apart for the frames to rest upon. The bricks keep the frames from touching the ground, which tends to preserve them from decay, and they serve at the same time to insure perfect ventilation, so that there is never any occasion for this purpose to move any portion of the glass. As for the vine, that is planted at one end, in a mixture of good loam and broken plaster or old mortar, with a little manure. A rich soil is not desirable, but it is desirable the position should be dry and the soil light; conditions which promote a perfect ripening of the wood in the autumn. The slates are simply laid on the common soil, and the vine is kept in its place on the slates by means of a few pegs.

There are now several distinct forms of ground vineries, all alike in principle and scarcely differing in dimensions; their distinctiveness is seen in a few of the details of construction. The cheapest of these, perhaps, is that called the "People's Vinery," manufactured by Mr. Dennis, of Chelmsford, Essex, the well-known manufacturer of iron greenhouses, which are also remarkable for elegance, efficiency, and usefulness. These vineries are made in both wood and iron; and



DENNIS'S PEOPLE'S VINERY.

the prices range from about 20s. to 40s. per pair. Being light, it is an easy task to remove them when needful for attention to the vines; and they can be turned to good account during winter to protect beds of cauliflower plants, endive, lettuce, etc., etc., the vines requiring at that season no protection, or should protection be thought needful, a hayband twisted round the stem will be sufficient. A

skilful amateur grape grower, Mr. Wells, of Southend, has made a further improvement, and taken out a patent for its protection. The improvement consists in putting all the parts together by means of hinges, so that a vinery can be folded up like the leaves of a book, and carried with ease from place to place, and when packed away, in case of being out of use at any time, a vinery 14 feet long occupies a space only 7 feet long by 20 inches wide. To make the utmost use of such a structure, the cultivator should lay out in autumn a series of beds of the same width as the vineries. In these beds should be planted such things as cauliflower, saladings, sweet herbs, and other useful subjects, that require a little protection, or that are wanted for use early in the spring in advance of the ordinary outdoor supplies. Such things as fresh green mint, savory, thyme, etc., are acceptable everywhere in the months of February and March, when only dried herbs are ordinarily to be had; and to secure them fresh and abundant it is only needful to have them planted in good time in beds which can be covered with the frames. The engraving will explain the peculiarities of this invention, and any further particulars respecting it may be obtained by applying to Mr. Edwards, seedsman, 25, Bishopsgate Street Within, London, E.C.

I shall conclude this with a list of

VARIETIES OF GRAPES WHICH MAY BE GROWN TO PERFECTION IN
GROUND VINERIES.

*Black Hamburgh** is one of the very best for the purpose. At the Guildhall Flower Show in November last, Mr. Wells exhibited the whole crop of Black Hamburgs from one of his vineries: the bunches averaged a pound and a half each, and there were ninety-three bunches in a run of forty-five feet, rather more than a bunch for every six inches throughout.

*Trentham Black**.—Berries large, and handsome bunch, flesh juicy, rich, and with a peculiarly refreshing flavour.

Duchess of Buccleuch.—Large bunch, small berries, ripening a greyish green colour. Not at all a handsome grape, but one of the finest flavoured known. At the great fruit show at Edinburgh in September last this was awarded the premier prize for flavour.

Golden Frontignan.—Long bunch, small berry, ripening a clear golden amber colour; flesh crackling, very rich and good.

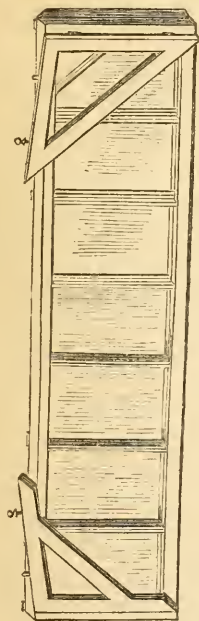
*Primavis Frontignan**.—Large bunch, large round berry, when ripe a fine amber colour, the flavour everything that a connoisseur could desire.

Chasselas Rose de Falloux.—Large round berries, pale red, flavour sweet, but not rich nor aromatic. It will be prized by many for its beauty.

*Chasselas Vibert**.—Large round berries, of a fine golden amber colour, flesh juicy and rich; a first-rate variety for this mode of culture.

*Chasselas Violet**.—Berries large, deep purple, flesh sweet and refreshing, cannot be surpassed for fruitfulness.

Royal Muscadine.—When grown in ground vinery the berries are larger, the flesh sweeter, and the aroma proper to the class more fully developed than when grown on walls or in open vineyards.



WELLS'S PATENT PORTABLE GROUND VINERY.

Early Black Bordeaux.—Berries large and round, bunches short, colour deep purple, fine rich flavour. Useful for its earliness.

Gros Maroc.^{*}—Berries oval, deep purple, covered with dense bloom, flesh very sweet and rich, an excellent bearer.

Royal Vineyard.—Large bunch and large oval berry, colour clear amber, flesh crackling, sweet, juicy, with a fine refreshing aroma.

The above might be added to, to a considerable extent, for the fact is any variety of grape which does not require a great heat to ripen it, or a peculiarly high temperature when in flowers may be grown in these vineries. The foregoing selection includes a few that are most likely to be generally useful, and six of them are marked with an asterisk as the best of the series where only six kinds are required.

SHIRLEY HIBBERD.

SWEETLY-SMELLING FLOWERS.

BY MR. W. ROBINSON, ROYAL BOTANIC GARDENS, REGENT'S PARK.



B RILLIANT colour in our gardens and greenhouses has long fascinated us, form has a still more refined attraction for thousands of fern-lovers and growers of foliage plants and palms; but what about the perfume, to the production of which we hardly devote any attention? What more delightful association of the garden than its delicious fragrance, especially if it be a garden comprising a great variety of subjects?

Form and colour have been hitherto the great ends in view both in the laying out and management of gardens. I think it would be a great improvement if we occasionally gave a thought or two to perfume, and made a point of enjoying it in its most delicate and delightful varieties. Let it be understood that I am not now writing for large gardens in particular, where every worthy subject may be paid attention to, but for every variety of garden, from that of a square perch in extent to the "ducal" gardens, and even for that popular kind which has the window-sill for its subsoil, and is generally moistened from the water-jug, as every known variety appears to be about equally badly off for that without which flowers lose half their charms. Now if I were going to lay out a place for myself, I would arrange a quiet nook according to scent. You know Sydney Smith confessed that he should not be surprised if the alphabet could be taught blind children by a series of scents, and that men may see the day when they may smell out their learning, and when "a fine-scenting day shall be (which it certainly is not at present) considered as a day peculiarly favourable to study." Horticulturists have done this already to a great extent. If the truth was fully told, a great many of the best of them have "smelt in" a lot of the zeal and love for their favourite pursuit which animates them.

Of course it is impossible to exclude an agreeable fragrance from the garden, arrange it as we may; but it is mostly a matter of accident, and very different in kind from that furnished by some of

the plants to be presently named. To do anything like justice to the host of easily cultivated sweet-smelling flowers would occupy the FLORAL WORLD throughout, therefore it is not intended to expatiate upon things abundantly grown already, and with which everybody who cares for flowers at all, and has a healthy nose, cannot fail to be sufficiently impressed in the ordinary course of an every-day walk in any part of the suburbs and the country where houses and gardens do congregate. This much, in case anybody should think we had forgotten or slighted mignonette, the Frenchman's darling, the host of gratefully and delightfully-smelling pinks, and carnations, and picotees; the sweetbriar and honeysuckle; the ever-welcome stocks and wallflowers, which seem ordained for the special purpose of ameliorating the not over-pure atmosphere of the dense streets of this crowded city during the heats of early summer; and so on and on from roses to rosemary.

My object is to spread a knowledge of agreeably-scented plants not now sufficiently grown or known, though in most cases as cheap as what Mr. Hosea Biglow calls "onbleached sheetin." I do not think there are any plants in the United Kingdom better suited for our wants in this way than some of the evening primrose tribe—the *Oenotheras*, and particularly *O. Lamarkiana*, which is a really noble plant, that will throughout the season furnish quantities of its large and handsome yellow flowers, opening in the moist and cool evening sweet as the breath of heaven, so far as we know anything about that vapour. There are several other varieties near this, nearly or quite equally valuable, and all probably strong-growing varieties, or sub-species, of the common evening primrose. *O. biennis*, an old and fragrant favourite, which would be almost sure to perpetuate itself *ad lib.* if a few seeds or plants were put in some out-of-the-way place near the garden, if room could not be found in it. I am a great advocate for this "out-of-the-way place" and semi-wild business, believing that scores of good and delightful plants may be enjoyed thereby, which, for some cause or other must be denied room in many gardens. With it may be named *O. odorata*. These are all among the cheapest of the cheap. In case of making a special feature of sweet-scented flowers, it might be well to plant with these sweet evening primroses, some that are of surpassing beauty of flower, though nearly devoid of scent, as, from opening in the evening with those beforenamed, they would be very beautiful, and compensate, to some extent, for the want of showy flowers exhibited by many plants of a fragrant character—the mignonette and high-smelling stock to wit.

It is now nearly eight months ago since I stood in the midst of many score acres of flowers in full bloom in a seed-farm, admiring many annual and biennial flowers, but particularly delighted with a fine annual, having flowers as large as if it had no scent, nor any business to, or anything but flaunt colour about in the breeze, like a big dahlia or sunflower, and as sweet as the Indian daphne or the spurge laurel, which appears to have forgotten everything in the way of colour and form in its endeavours to provide for the emission of a delicious aroma on a moist early summer evening, and thereby

making the uninitiated hunt about in vain "for the flower that smells so sweet." It was *Datura ceratocaulon*, a native of South America, but which it is a comfort to know may be had as cheap as the commonest annual in cultivation, at threepence per packet. The flowers are intensely beautiful, and of a satiny texture. Well worth growing is the plant for these alone; but as it opens best in the evening with the evening primroses, it is, perhaps, without exception, the noblest sweet-scented annual in cultivation.

Whatever other merits this essay may possess, I think it will be granted that in point of time of appearance it is *apropos*. This is "seed-time," and the harvest of your flower, or "cottage," or any kind of garden yet named, will be rendered very much more pleasant by ordering a packet or two of this annual, when this paper meets your eye. Sow a few grains in a pot, and some in the open air, about the end of April; and however it is sown, plant it in a border among your favourite flowers, or put it with the sweet-scented things we are speaking of, or put it anywhere that a flower will grow, and I promise you that you will be delighted with it, particularly when the day is about to retire from the summer world, and you go out in the cool evening of a hot day to imbibe a little of the beautiful breath of earth, when life and growth is busiest and sweetest.

This paper, I have said, will meet the eye of the FLORAL WORLD public just at the right moment, when everything is "coming out"—the snails and humans out of their homes into the garden; the purses out of our pockets for seed-buying; the buds are thrusting "out their little hands into the ray." This is the very moment for the sowing of fragrant flowers, if not already performed—the annuals, of course, I chiefly now refer to. There are other *daturas* named in the seed catalogue, but I confess never to have seen them do much or any good, and some I have not seen at all. Some are described as very fragrant, but I fear they are too tender for our gardens.

Perhaps the not always odoriferous order *Cruciferae* furnishes more sweet flowers for our gardens than any other—the sweet-scented rocket (*H. tristis*), and the night-scented stock (*M. tristis*), the sweet alyssum, sweet candytuft, the fragrant honesty, and a host of delightfully-scented stocks and wallflowers belonging to it. And this year a new addition to its perfumed ranks is being made by the introduction of *Matthiola bicornis*, not yet seen much in England, but described as emitting a powerful fragrance, and resembling a mixture of stock and sweet-scented clematis combined. It is half closed and weak-scented during the day, but opens towards evening, like many of its kind, and then the scent is sufficient to arrest attention at one hundred yards distance. It is not an attractive plant from any other point of view. Treat it as a hardy annual.

Artemisia annua is recommended for its perfume, which is somewhat in the way of the wormwood and southernwood; but its chief merit is that it furnishes a nice tapering bush of pleasant green, and of an elegant character—a fine thing for the mixed border, if only for variety's sake.

In addition to sweet peas in plenty, it would be well to bear in

mind, when sowing, the two kinds of sweet Sultana, *Amberboa moschata* and *odorata*, nice for warm borders, also the Moldavian balm (*Dracocephalum Moldavicum*), pleasant smelling, but not conspicuously beautiful; and, if rather pungent and distinct odours are cared for, the "Balm of Gilead" (*D. canariense*), which is readily raised from seed, and does well against a wall or in a greenhouse. The common balm of the herb ground (*M. officinalis*) is perhaps, the most blandly, agreeably-scented plant we have; but it is perennial, as many of the best sweet-scented things are.

The great majority of suburban and country gardens offer quiet isolated spots where an arrangement of these flowers would be particularly appropriate; where the musk hyacinth might keep company with the lily of the valley, the sweetbriar dwell in the background among honeysuckle, and behind it boughs that bear "the hawthorn's blossom," while the ground might be covered over with the green of the sweet woodroose (*Asperula odorata*), as it is in some of the college gardens at Oxford and in many woods and shrubberies. Primroses should abound along the margins, and an odd patch of musk in a moist place, if the owner cares for it; but freely and above all should abound tufts of the common mixed varieties of polyanthus, which are so sweet and so pleasantly varied. "Finest mixed Polyanthus" is probably the name the seed may be bought by; and in one year from the time of sowing an abundant flowering crop may be had. It is particularly desirable to use these freely around shrubbery borders, etc., in comparatively shady spots. A narcissus (*odorus*), sometimes called the jonquil, is a free-flowering and gratefully and delicately scented plant, free to grow, and capital for borders where sweet flowers are a desideratum. Some of the irises are sweet, particularly *persicum* and *reticulata*.

One particularly neglected fragrant climber is *Clematis flammula*, than which there is not in the nurseries a more delightful subject for training over an old stump in a shrubbery, over a trellis, or, indeed, in positions where a climber is desired. It does for the autumnal garden what the hawthorn does for the early summer. I remember having much admired several masses of it twining round old stumps near Frogmore House when at Windsor last autumn. It is very cheap, hardy, and most useful for cutting from, for indoor decoration, wreaths of flowers, etc. I am not sure that it would do so well for the London gardens as the sweet jasmine, which it is such a pleasure to see doing gloriously even far into London, but it might be tried with advantage. Against low warm walls in front of greenhouses, and under the windows of houses with good aspect, it is, I think, a pity that we do not oftener grow a nice little line of such things as the myrtles and sweet verbenas. Even about London they could not fail to do well; in the south they make small trees without any attention. But there is another wall shrub to which attention should be directed far more than it has yet been. I allude to the deliciously sweet *Chimonanthus fragrans*; the most worthy of all shrubs of being placed in a warm corner against a wall, let that belong to terrace, house, outhouse, or cottage. In winter, a few sprigs of this pulled and placed in a vase of flowers in the drawing-

room are worth their weight in gold, and distill an almost matchless odour.

I find I have got into shrubs, and forgot our old friend the winter heliotrope (a just name); but it is such a large subject this, that I fear I have forgotten a great many more good things than I have named. Above all other wild hardy plants this (*Tussilago fragrans*) is the most accommodating. It should never be admitted into the garden proper, else it may become a contumacious weed; but if there happen to be a stony heap among shrubs in any backward place, or the bank of a ditch, an old lane, or any other position where you can lay hands on it when in flower, plant it, and it will increase abundantly, and afford a lot of very gratefully-scented modest-looking blooms when there is hardly anything to be had, indoors or out, with any perfume. A handful or two gathered and placed in a vase, as a sort of groundwork for gayer but scentless flowers, will furnish a grateful odour in the midst of winter.

It used to be the fashion to plant beds of heliotrope in the summer garden, but the practice is almost gone out. I cannot conclude this short paper better than by recommending that a small bed or some patches of heliotrope should be put out in every garden about the 1st of June, as it does so finely in the open air, and has a powerful effect in creating an agreeable fragrance in the bedding garden. If its use would interfere with any design in colours, it would not, generally speaking, be difficult to find a place from whence its odour might circulate without the plant being seen. For my own part, I think it as well worth seeing as any plant used for bedding; but knowing that the taste of bedders has run so much in favour of decided colours of late, I speak thus timidly of an old favourite.

The violet should have been omitted from this paper in common with the clove carnation, and many another old friend, were it not that I have just had a vivid remembrance of the beautiful spread of violets that I was fortunate enough to see at Bicton, the seat of Lady Rolle, last autumn. They were then in great beauty, and have continued so since. On fine days in spring, when all the little flowers are induced to come out and sun themselves in a mass, the effect of these Bicton violet beds is, perhaps, unrivalled. Judging from our garden literature and conversation, one would think the successful culture of the violet was as much a matter of fact and congratulation as that of the geranium; but whatever others may think about it, I confess to never having seen the sweet violet done to perfection till I visited Bicton. Mr. Barnes is at once the largest and most successful private grower of it I have ever met. But he takes particular care to meet its wants with a good deal of labour; not so much, however, as to deter cultivators on a small scale from following his example with advantage. This plan is very simple. Seed of the Russian violet is sown on a nicely-prepared bed in February; the young plants are grown on through the summer on a border with a north aspect, and kept freely growing. In October the plants are taken up with good roots, and planted in various sheltered positions in the flower and kitchen garden; but the most particular crop is put out in front of the camellia-house, forming one

side of a quadrangle of hothouses. A row of sloping flags a few feet wide run along the front, and when October arrives, a row of bricks is placed along the edge of these, and then the flagged space filled up with nice friable loamy soil. The aspect, shelter, and drainage are perfect, of course, and the soil, plants, and all being fresh every year (the old plants and soil being cleared off every year), the result is perfection itself. Hundreds of bunches are frequently cut from this bed in a single week; and though at the time of my visit the beds had only been made up about twenty days, they were almost blue. Mr. Barnes finds that young violet plants flower much more freely and abundantly than the old ones, and only cultivates such. The flowers also from young plants are much longer in the stem, which is some consideration to those who have to make up many bunches.

THE CULTIVATION OF GOURDS AND MARROWS.

[Written for the March No., but omitted through want of room.]

BETWEEN this time and the 10th of April, intending growers should determine their plans, and sow the seeds of the varieties intended to be grown for show. The first object will be to secure vigorous plants for planting out in May under hand-lights or in frames, and for this purpose the growth should be slow and steady; no check by cold draughts or injudicious watering, and no hurrying by excessive heat. The customary way of raising marrows and cucumbers is objectionable, because it tends to debilitate the plants, so that when put out they are a considerable time recovering. The first error is in sowing several seeds in the same pot, the separation of the plants causing damage to the roots; the second error is in allowing the seedlings to remain together too long, so that they get drawn, weak, spindling, and unmanageable. We would advise intending competitors to sow the seeds in 60-sized pots, two seeds in each pot. The strongest plant of the two should be allowed to fill the pot with roots, the weakest should be removed as soon as any difference as to strength is perceptible, the plants removed may be potted into 60's to have a chance, but those that remain untouched until they fill their pots with roots will prove the best in the end. Before shifting these, separate the ornamental from the edible kinds, allow the edible kinds, which are required to furnish the largest fruits, to grow as they please; but the ornamental kinds should be stopped, and allowed to break before being shifted. As in growing large fruits it is essential to have the plants in the fullest possible vigour, with plenty of large healthy leaves, care must be taken at every stage in their growth that they never get pot-bound, and never suffer through lack of air or moisture.

For the seedlings, a light rich fuchsia compost will be most suitable, as it will promote the formation of an abundance of roots. After that, good, sound turfy loam should predominate, and it should

be lumpy, and the pots well drained. The prevailing idea as to the growth of great gourds is that an abundance of dung is necessary, whereas there is nothing better than turfy loam, and plenty of it, with a moderate admixture of dung and charred rubbish. The top spit of a loamy pasture, if inclining to clay not objectionable, should be laid up in narrow ridges to be mellowed by the frost; and when the beds are made up, the substratum should be stable dung which has nearly parted with its heat, over which should be laid eight inches depth of the loam mixed with a fourth part thoroughly rotten manure.

The plants being strong in May, and the bed ready, defer planting until the weather begins to look summery. If the beds are raised above the level, there will be no fear of danger from damp, and the plants may be protected by hand-lights until the season is so far advanced that they can take care of themselves.

Bearing in mind that unless the plants are in full vigour the fruits will never attain to any great size, it will be important to encourage the growth of a healthy and abundant foliage. When dung is too largely used the plants become rank, make an excessive number of watery shoots, and are as like to drop their fruits as set them; whereas when in deep beds of sound loam, strength is obtained without rankness, and there is no fear of any superabundance of leaves. As the fruits swell, water may be given abundantly, and at regular intervals liquid manure. There is an old-fashioned plan of swelling gourds to a large size. It consists in placing a vessel of water beside the fruit; a length of worsted is attached by one end to the stalk of the fruit, and the other end, with a stone attached to it, is placed in the water. It is supposed that by capillary attraction the fruit is enabled to absorb a large quantity of water conveyed to it by the worsted, but we will not vouch that the method is of any practical value whatever. In planting out the gourds in beds, the rows should be at least ten feet apart, and the plants five feet apart in the rows, for the strongest growers; but for weak-growing kinds smaller spaces will suffice.

Ornamental gourds are, generally speaking, best grown on trellises, as, if the fruits lay on the ground, the under side rarely acquires its proper colour, and the rind is apt to grow warty. They require full sun, a deep, loamy, warm border, and plenty of water when they have once made a start, and are running freely. As many growers may be in doubt as to the qualities of some of the ornamental kinds, we ought to add a caution, that the kinds which are not edible are decidedly poisonous, and the consequences of eating them might, at any time, be fatal. But there is no difficulty in determining if any gourd is fit for table use; the poisonous kinds are all bitter, the fruit, the leaf, and even the immature shoots, are nauseously bitter, and the tongue will give all the information on that subject that may be necessary. It will afford some idea of the amusement that may be found in the cultivation of gourds, if we mention that on two occasions last season Messrs. Barr and Sugden exhibited collections comprising 500 varieties.

THE TOMATO, AND ITS USES.

BY MR. JAMES CUTHILL, OF CAMBERWELL.



THE seed of this esteemed esculent is sown round London in March and April, in shallow pans or boxes in light soil, and then placed in heat. When the plants are about two inches high, plant into small pots in rich mould. When the plants fill the pots with roots, shift into a size larger, and by this time they can be put into a much cooler place. The plants are now topped, and are planted out in May. Mr. George Bagley, of Fulham, showed me his crop three years running, every plant covered with fruit from bottom to top, each plant only allowed two shoots, trained up the walls, one foot apart each shoot. The great secret is in pinching off the head continually, just at the bunch of fruit, for, if allowed to grow two or more eyes, then they would lose their fruiting in luxuriance of growth. This pinching of the head is continued to the height that the plant is grown to (about three feet high or so), and this height is quite enough for the plants to ripen off their luxuriant and splendid loaded crop. In the above management not one shoot nor any superfluous foliage is allowed to drain the resources of the plant. The fruit also ripens at least a month earlier than by the old system. I have always stopped my cucumbers in the trellis in the pits at every joint, but never thought of doing it with the tomato. Mr. Bagley had not only his dwarf walls covered with the tomato, but he had ridges thrown up facing the south, and straw spread on the south side of the ridge to keep the mould from being washed down, also to keep the plant and fruit clean, and mulched at the bottom, to prevent the sun from drying the earth round the roots. Mr. Bagley also had this plant growing up sticks in the centre of his marrows, all grown on the same system, and all loaded with heavy crops. My principal object is to encourage the cottager to grow this plant for his own consumption; every one has a bit of garden ground, and he could always beg a few plants from the nearest gentleman's gardener, if he has no convenience to raise them himself. The Americans eat the love apple raw, just the same as our labourers eat onions. But it is to make sauce that I recommend its growth. Now, before I found out the simple way of making the plant bear a heavy crop, I dare not have recommended the cottager to waste his time about it, for this plant, if allowed to grow anyhow, is the most barren of any plant I know of; and, when fruit is produced, half of it never ripens at all. A simple and easy way to make tomato sauce is—when ripe, cut them into slices, taking out the seed; lay the pulp down in layers of salt for a day or two; put all into a stewpan, and add two or three shallots, or an onion or two, and Cayenne pepper, but a capsicum or chili would answer the same purpose; boil all for two hours gently, then put it through a sieve, then boil again for two hours or more. Now this is one grand secret in all preserves—if they are not boiled to evaporate all water out of the preserve they never keep;

but if boiled well, the preserve will keep for years. Some vinegar might be boiled with it, if you choose it. The above simple way of making tomato sauce does not cost much, and, as it should be, the apple predominates in flavour. No sauce in hot summer or any time entices other food down like it. Nothing improves a dilapidated stomach so much. It is a general favourite with the wealthy; but it is for the middle and labouring classes that I have thus been so particular in my description of the love apple.

TRITOMA UVARIA

(THE RED-HOT POKER PLANT).



ALTHOUGH this is such an old-fashioned inhabitant of the garden, so far from being likely to be shelved among the things that were, in order to make room for younger favourites, it seems to be acquiring a more extended popularity every year. There are few persons who do not admire their upright racemes of fiery-looking flowers, which, from their height and the vividness of their colouring, render them particularly applicable for using in the centres of beds, etc. And there is scarcely a single drawback to its universal adoption by lovers of flowers, whether they have time, space, and means for the cultivation of a small garden only, or have plenty of money and land at their command; for they are now to be had so cheap that every one may be possessed of a few specimens, and those to whom money is no object may make grand effects by planting them in great clumps, where they will bloom to perfection and enchant everybody, as the fine beds of them at the Crystal Palace, Kew, and elsewhere did the visitors during the past month of August. Then, again, they are so nearly hardy that the only protection required by them in ordinary winters is a good thick layer of coal-ashes, which is a sufficiently warm great-coat to prevent them from being injured by moderate frosts. Their culture and management is very easy, and may be undertaken by any one with a fair prospect of success, if he will only pay attention to a few plain and simple instructions.

Tritoma uvaria from Seed.—The best way of raising them from seed is to sow on a warm bed about the beginning of March, or as late as the month of April if found most convenient. They should not be sown on a hot-bed, as too much heat is not good for them, but a nice warm bed, say one that is nearly spent, will exactly suit all their requirements. At the end of June, take out the seedlings with a ball, and plant them in the open ground, and leave them to their fate until autumn, when they must be taken up, balls and all, and kept in a half dry state all through the winter in a place where the frost cannot get at them. In the following spring divide them and plant them out separately, where they may be left to take care of themselves for the remainder of their natural lives, the only protection

requisite during the winter months being a good mulching of coal-ashes.

The easiest way, however, of raising them is from the strong side-suckers from old plants in the spring; the end of February is the best time for amateurs to divide them, and the divisions should then be planted immediately in a rich sandy soil, where they are sure to do well without much attention.

Another excellent way of growing them is from eyes, in the same manner as potatoes are propagated, the same sort of treatment doing equally well for both. This operation of dividing should be performed in November, by which time a large fleshy root-stock, or ground-stem will be formed beneath the soil. On this will be found the eyes, in a similar situation to the eyes on Canna roots, or any other kind of gingerwort plant. From every eye you ought to get a good plant, and the only difficult thing is cutting the roots up properly, and there is really no difficulty after all in this. All that you have to do is to cut as much flesh as you can to each eye, and as many of the carrot-like little roots to each division as you conveniently can; but these last are not absolutely necessary to insure success. These "sets" are to be treated in exactly the same way as potato sets; they should be planted in the same kind of soil, at about the same depth, and the same distances between the sets, and success will be certain. After they are cut they may be kept indoors for a week or so, in order to let them get sufficiently dry for the purpose of planting, and then they may be put in the place where it is intended they should remain; but perhaps the better method is to place them in very light soil until April, for the purpose of enabling them to multiply their roots, and then planting them in good, rich, strong soil, in their permanent positions.

They may be allowed to get about six inches high before any water is given but such as they get in the ordinary course of nature; but from this time they may be watered about three times a week until they have attained a height of eighteen inches, when they may have a liberal watering every day, with pretty strong doses of house sewage, in which they will rejoice amazingly, and grow at a furious rate. In fact, they would not be injured if they were grown in water during the three hottest months of the year, for they appear to be the most thirsty of all the plants we have from South Africa.

This is about all the attention they need, and if it is not required to continue their propagation, they may be left in the ground with their winter protection of coal-ashes. The roots will enlarge rapidly if the soil is congenial to them, and the side-suckers will in their turn throw up additional flower-scapes, so that they will ultimately become very noble objects.

The best time to purchase and plant Tritomas is the month of April, and a well-manured loam and a position fully exposed to sunshine are needful for their well-doing.

Brixton.

W.B. B.

FORMING AND MANAGING GRASS LAWNS.



THOSE who have good turf should take good care of it, for this, like other useful things, may be ruined by bad management. Roll it and mow it frequently, grub out the daisies, and sprinkle nitrate of soda thinly on the parts that have become mossy, or dress the whole surface with superphosphate of lime if the lawn is an old one, and the grass is getting poor. But turf is not everywhere good; in fact, we rarely meet with turf that thoroughly pleases us, and we are rather fastidious on the subject. There may be grass, and plenty of it; but we abhor the coarse meadow turf to be seen in many of the villa gardens about London, and if we had to take the gardens under our charge, we should strip off such turf and sow it down afresh for the sake of having a fine, close, smooth, velvet-like sward, which strong-growing grasses cannot produce under any circumstances. This is the first point to be noted. Many who think they have good lawns, have, in reality, very bad ones, and the reason of the badness is that when the grass was laid down, the turf was taken from a meadow where the coarse-growing feed-grasses constantly manured on strong loamy soils acquired a robustness that rendered them fit only for one purpose in a garden, and that to be laid up in ridges to rot, to furnish the basis of composts for pelargoniums, carnations, and other flowers that like a soil consisting chiefly of turfy loam. I would impress upon those about to form new lawns or mend old ones, that turf from a meadow is utterly unfit for a garden lawn, and that lawns so formed lack the felt-like character which should always be aimed at in the formation of a plot of turf.

Where is turf to be had? This is a puzzling question. The commons are being enclosed, and there is scarcely fifty square miles of real good turf left within carting distance of the whole of the towns of England, and about London there is none to be found within a day's journey. If close turf from a common can be had, there is nothing better for a garden lawn. It should be taken from spots where the soil is poor, where it has been bitten for centuries, where the grasses are of fine growth, and a close bottom of clover makes the ground elastic to the tread. To lay down such turf is a mere mechanical operation, and it is only necessary to have the ground deeply trenched, all large stones removed, then levelled, and raked smooth, and down may go the turf. If well beaten it will afterwards take care of itself; but if the weather is very dry, after laying it down, it should be drenched with water once or twice, and for this work there is a water-barrow by which the operation may be accomplished with very little labour. Mere sprinkling the surface of grass is of little use; if water is needed, give plenty, and leave it alone till it is again dry enough to require a repetition; but in this climate it is not often that we need to water grass, though in the vicinity of towns grass often needs water towards the end of the summer, and very seldom gets it.

If really fine close turf cannot be had, then there is a resource

which never fails in seed. Properly managed, and allowing plenty of time, *the best turf is obtained from seed*, but the seed should be obtained from a first-rate house, known for its care in selecting and saving grass seeds, or a worse result may happen than by the use of turf from a fat meadow. The grass seeds sent out by the leading houses in the trade are all that can be desired; they are selected so as to be adaptable to every variety of soil and position, so that the purchaser only need to specify whether he wishes for a lawn under trees, on a bleak hill, or on a damp loam, and a mixture of seeds will be sent for the purpose. In fact, seed is invariably used now in laying down lawns in grand gardens; and at the Crystal Palace, Kew, Kensington, and Aldershot, those who rejoice in good turf may have examples of what may be done in this way, for all these swards were sown down with mixtures of seeds.

The laying down of turf, however, is not only a great saving of time over producing turf from seed, for the fact is, the moment the work of laying the turf is completed, the lawn is made; but with seed we must wait a year before we can say that we have a really good turf.

A deep sandy loam produces the finest turf, but the more sandy, the more apt it is to get burnt in summer time. Fat lawns carry good swards if care is taken to keep down daisies, docks, and dandelions; these should all be spudded out, and if the extremities of the roots cannot be removed, they should be covered with an inch of salt before the holes are filled in; this will kill the fragments of roots that remain in the ground, and the turf will soon join over the places whence the weeds were removed. On clays and rich loams the grasses always show a tendency to become coarse, and whatever dressing is applied should be of poor sandy stuff, with an admixture of old mortar, road-sand, or other gritty material free of stones or brickbats. Manure should never be applied to grass on sound loams and clays; as much water as you please when it is needed, but manure will cause a rankness of growth that is very objectionable. On the other hand, poor sandy and peaty soils will produce a closer and richer turf, if annually manured. Rotten dung spread over the surface and broken up, and scattered an inch deep during March, will bring the grass forward, and if well rolled when quite dry, its appearance will not be unsightly, and in a very short time the grass will rise through it and justify the act. But superphosphate of lime, at the rate of three hundredweight per acre, is the best dressing for grass on poor soils, as it encourages the growth of clover, without which there cannot be a good turf.

Before grass seed is sown the ground should be drained, if needful, then dug deep, and the bottom spit mixed with the top, if the staple is good, then raked quite level, all stones and hard rubbish, dead roots, etc., removed, and the whole rolled smooth and firm. On a fine day, when the ground is pretty dry, and no wind stirring, proceed to sow. The proportion of seed required, is one gallon to every six rods. Have ready a sufficient quantity of fine dry earth to sprinkle the whole surface half an inch deep. Scatter the seed rather thickly, and throw over it the fine earth, and roll several times

to render the whole firm and smooth; and if sparrows abound in the neighbourhood, stretch some white threads across the ground about three yards asunder, and they will be scared long enough for the seed to germinate.

Old lawns that have bare patches may be renovated without disturbing those parts that are in good trim. Strip off the grass, or dig it in over the spots that are poor, rake smooth, and sow as just described. But generally turf that is poor in grass is rich in weeds, and to dig them in is to make sure of their coming up again; therefore the removal of the turf is the safest course, as when rotted it is valuable for potting, and the loss can be made good with soil brought to the spot. Grass that is merely thin, and not weedy, may, if the soil is not sour and exhausted, be greatly improved by sowing over it now a good lawn mixture, and then covering with fine soil and rolling in.

S. H.

THE BEST VARIETIES OF ASTERS.



ASTERS are now divided and subdivided into so many classes, that it puzzles one to select; however, we will soon reduce the list, and at once say all that are required in the most fastidious establishment are—Truffaut's Pæony-flowered, Chrysanthemum-flowered, and Quilled.

With the first every one is familiar from seeing the splendid blooms exhibited at our autumnal shows, looking like incurved chrysanthemums, and for decorative purposes and cutting for bouquets are unsurpassed. These can be purchased in named packets, twenty-four or twelve distinct varieties; and also by growers of smaller means in mixed packets; only be sure to get imported seed, let the quantity be ever so small, as seed saved in this country is worthless, producing not one good flower in 500. Why such is the case I will not pretend to say, but only vouch for the accuracy of the statement, having tried for many years to save my own seed, but always failed in getting a good flower from it, whereas the imported seed was always fine and beautiful.

The next is the chrysanthemum-flowered, and of this variety there are two kinds—the tall and dwarf. The tall is very fine for cut flowers; the dwarf is, however, much the best for display, and no garden should be without this variety. Nothing can be more beautiful than a bed of dwarf chrysanthemum-flowered asters, and I strongly recommend them, to lady gardeners especially. They have only to be seen to be appreciated, growing from six to eight inches in height, and every bloom seems placed on the stems at an equal distance, so that a bed will appear as level as if pegged down or artificially trained. The seed of this must also be imported.

The quilled, or, as called years ago, China and German aster, is still one of our most beautiful garden flowers, the form of the flower being when well developed a half globe, and the colouring of the florets so delicate that they will bear the closest inspection without detracting from their beautiful appearance. This is grown and known to the German growers as Reid's Aster, by English growers

as Betteridge's Aster—Mr. Betteridge having been very successful in exhibiting them the last few years, and produced them in splendid condition. If you purchase what are called by the German growers quilled asters, you will be grievously disappointed, as what they call quilled is a mongrel variety, and, plainly speaking, not worth the paper the seed occupies.

There are lots of other varieties, I see, in the list, such as Giant Emperor, a great coarse kind; Cocardeau or Crown, two colours in each flower; and also a New Victoria, Pæony Perfection, Globe Pyramidal, and many more; but the three varieties already named are all that any one can wish for.

CULTIVATION OF STOCKS AND ASTERS.

I have been very successful in cultivating both stocks and asters. My time of sowing has usually been the second or third week in April, sowing each variety in a separate pot, and placing in a cold frame until ready to prick out in the open ground—the soil used being loam and sand. I find any manure added, especially to the soil stocks are sown in, causes them to damp off in the seed-pot.

As soon as ready to prick out, I plant them at once where they are to flower, allowing twelve inches from plant to plant, and fifteen inches from row to row, choosing a dry day for the planting out, and as a row is finished, slightly watering, and covering each plant with a thumb-pot to shade from the sun, taking the pot off at night, and covering during the day for three or four days, unless a showery day comes on, then the pots are left off altogether. The ground is well prepared by being trenched two feet deep, and then a good supply of well-rotted manure dug in and left exposed to the March winds, and levelled and raked down just previous to planting out. When well established, and just showing their flower buds, copious supplies of weak manure water should be given twice a week; a fine display of blooms will then be attained. When growing asters for exhibition, I have always found shallow trenches the best; manure, etc., being placed for them to grow in, exactly as you would celery.

W. H.

NEW MODE OF GROWING CINERARIAS.

BETWEEN the 1st and 5th of April sow some good cineraria seed in pans, and place in a heat of 70°. In ten days the plants will appear. By the end of the month they will be large enough to be potted singly, in 60-size pots. The soil should be equal parts leaf-mould (or turfy loam) and peat, with silver sand added. Water with a fine rose on the pot, and place on bottom-heat for four days. Next place them in a cold frame, or greenhouse, and keep close four days, after which time give air and keep them in the full light till the second week in June. Then prepare a border facing north, and sheltered with wall or fence, by laying on the surface four inches of a mixture consisting of equal parts turfy loam, leaf-mould, and coarse sand, or siliceous road drift. Dig the border nine inches deep to mix this stuff with it, turn out the plants, fifteen inches apart every way, and plant them firm. Water is needful. In the last week of September take them up with care, pot them, put them in a cold frame, and keep shaded for a fortnight. Then give them a good position in the greenhouse, the temperature to be 55° to 60° when the sun shines, 45° at night, and in frosty weather never lower than 40° at night. By this treatment you will have plants with great heads blooming from the 1st of November to the 1st of February.

S. H.

NEW PLANTS.



CHAMERANTHEMUM BEYRICHII, *var. variegata* (*Bot. Mag.*, t. 5557).—Acanthaceæ. A slender herb, native of Brazil; leaves ovate oblong, full green, variegated with white; the panicle many-flowered; flowers tubular, with an expanding limb, white, with faint shades of rosy blush. A pretty stove plant, first discovered by Beyrich, and introduced to cultivation by Mr. Bull.

LUISIA PSYCHE (*Bot. Mag.*, t. 5558).—Orchideæ. A curious species of a genus which contains but few interesting plants. It was discovered in Burmah, by the Rev. C. S. Parish, and introduced by Messrs. Low and Co. The leaves are thick and tapering, six inches long; flowers two or three in succession on a short spike; sepals and petals a pale yellowish green; lip not so long as the petals, fleshy, convex, beautifully marked with dark violet spots on a green ground. It is well named the "Butterfly-flowered Luisia."

HABRANTHUS FULGENS (*Bot. Mag.*, t. 5563).—Amaryllidæ. This magnificent plant most nearly resembles *H. phycelloides*, but is in all its parts about twice as large. The leaves are glaucous, ten to twelve inches long, linear, recurved, the scape eighteen inches high, purple at the base, otherwise glaucous green. The flowers four to five inches across, bright scarlet, tube



CHAMERANTHEMUM BEYRICHII.

yellow externally, the lobes yellow at the base, forming a well-defined, triangular mark. Introduced to cultivation by Messrs. Backhouse, of York.

DENDROBIUM DIXANTHUM (*Bot. Mag.*, t. 5564).—Orchideæ. This beautiful Dendrobe was discovered by the Rev. C. S. Parish, in Moulmein, and sent to Messrs. Low and Co., of Clapton. The leaves are grassy, three or four inches long, falling off before any flowers appear. Racemes two to five-flowered, sepals and petals pale yellow, lip spreading out in front from a broad, blunt-angled claw, of the same colour as the petals, excepting a deep orange tint on the disk.

HYOPHORBE VERSCHAFFELTI (*L'Illustr. Hort.*, t. 462).—Phœnicacæ. A beautiful palm, native of the Mauritius, introduced by M. Verschaffelt, of Ghent. The habit is symmetrical and imposing, the stem swollen at the base, the fronds arching outwards, elegantly pinnatifid, the pinnæ lanceolate, and a fine dark green colour.

HYOPHORBE AMERICAULIS (*L'Illustr. Hort.*, t. 463).—Phœnicacæ. Equally beautiful with the foregoing, and differing in the stem, being less swollen, the fronds



LUISIA PSYCHE.

more rigid, also divided into long lanceolate pinnæ.

SELECTIONS FOR 1866.



THE following selections comprise the best varieties in the several classes, any, or all, of which may be purchased with the most perfect safety. Generally speaking, the selections include varieties that may be obtained at a low rate of cost, but it must be understood that all the newer kinds are comparatively expensive, and in giving orders for them, that must be taken into consideration :—

ANTIRRHINUMS.—Ackergill, Beadsman, Bravo, Crimson King, Eugenie Scribe, Lord Clyde, Mammoth, Modesta, Optimum, Queen Mab, Striata perfecta, William W. Wardrop. These twelve are various in style and colours, and will form an excellent small collection, the strong selfs among them being admirable for bedding.

CALCEOLARIAS FOR BEDS.—Amplexicaulis,* Canariensis,* Cloth of Gold,* Gaines's Yellow, Aurea floribunda, Prince of Orange,* Viscocissima, Gem, Victor Emmanuel, General Wolfe, Prince Louis of Hesse. The best four for bedding purposes are distinguished by an asterisk.

DAHLIAS.—*Fifty of the finest show flowers in classes :—*

Light : Miss Henshaw, Umpire, Hon. Mrs. Trotter, Lady Popham, Mrs. Pigott, Peri, Charlotte Dorling, Anna Keynes, Alexandra, Princess.

Yellow and Orange : Norfolk Hero, Chairman, Golden Drop, Hugh Miller, Charles Turner, General Jackson, William Dodd, Fanny Purchase, Willie Anstin, Golden Admiration, Leah, Queen of Primroses, Lady M. Herbert, Mrs. Wyndham.

Crimson and Red : John Keynes, Triomphe de Pecq, British Triumph, Pioneer, Bob Ridley, Edward Spary.

Purple and Maroon : Andrew Dodd, Lord Derby, Midnight, Earl of Pembroke, Favourite, George Wheeler.

Lilac : Juno, Marquis of Bowmont, Jenny Austin, Criterion.

Striped and Spotted : Garibaldi.

Tipped : Stafford's Gem, Lady Paxton, Norah Creina, Queen Mab.

Dahlias for bedding : Queen of Whites, Golden Bedder, Golden Ball, Beauté de Massifs, scarlet ; Scarlet Gem, Rose Gem, Tom Thumb, purplish crimson, fine ; Captain Ingram, crimson ; Crimson Dwarf, Purple Zelinda.

Bouquet Dahlias : These are invaluable to plant in mixed borders and fronts of shrubberies to furnish cut flowers at a time when they are much wanted. The flowers of the varieties here named are very small and globular, the largest scarcely equal in circumference to the size of a crown piece. Annie, Little Darling, Little Philip, Little Puss, Tom Rover, Fairy Child, Pet of the Village, German Daisy, Pretty Polly.

SHOW DAHLIAS OF 1866.—The following are the best of the new dahlias to be sent out this season :—

Bullion (Turner), gold yellow ; *Epaulette* (Turner), gold, tipped with purple. *Fanny Sturt* (Pope), cherry red, tipped pale fawn ; *Freemason* (Turner), rosy purple ; *John Bunn* (Keynes), buff, boldly striped vermilion red ; *John Gibson* (Keynes), scarlet ; *Le Domino noir* (Turner), maroon, tipped white ; *Marquis of Winchester* (Keynes), maroon crimson ; *Sunlight* (Turner), reddish orange, changing to buff orange.

BEDDING DAHLIAS OF 1866.—*Little Beauty* (Rawlings), crimson with buff yellow base, very showy and novel ; *Queen of Roses* (E. G. Henderson), pure rose. *Scarlet Tom Thumb* (E. G. Henderson), scarlet, beautiful, very dwarf.

FUCHSIAS, best twelve, with dark corollas.—Always Ready, Charming, La Favourite, Lord Elcho, Exhibition, Bacchus, Lucretia Borgia, Marvellous (fine for standards), the Lord Warden, Troubadour, Rosa Salvator (fine for standards), Medora (dwarf). *Six with white sepals and red corollas.*—Bianca Marginata, Bridesmaid, Gipsy Girl, Madlle. Tietjens, Minnie Banks, Reine Blanche. *Six with white corollas.*—Conspicua, Madame Cornelissen, Puritani, Sanspareil, Emperor of Fuchsias (not good till it gets old, and is then fine for the conservatory), Vainqueur de Puebla. *Twelve various.*—Prince Alfred, Emblematic, Finsbury Volunteer, Rifleman (dwarf), Grand Duke (double dark), Hercules (double dark).

FUCHSIAS OF 1866.—*Beauty* (Banks), carmine sepals, lavender corolla ; *Dreadnought* (G. Smith), massive double, corolla violet ; *Enoch Arden* (E. G. Henderson),

crimson and purple, bold and showy, with a crinoline corolla; *Harry George* (E. G. Henderson), rose-red sepals, dark blue corolla; *Majestic* (B. S. Williams), scarlet sepals, violet corolla; *Serratiflora* (B. S. Williams), scarlet sepals, barrel-shaped corolla, a remarkably fine and very peculiar flower.

GERANIUMS (ZONATE PELARGONIUMS).—*Fifty best Cheap Varieties for a Collection.*—*Achilles*, *Adonis*, *Amelina* *Grisau*, *Amy Hogg*, *Attraction*, *Beauté du Suresne*, *Black Dwarf*, *Boule de Feu*, *Christine*, *Commissioner*, *Coquette de Rueil*, *Cybister*, *Eugenie Mezard*, *Excellent*, *Faust*, *Herald of Spring*, *Jules Cæsar*, *Lady Middleton*, *Leonie Nivelet*, *Le Prophète*, *Lord of the Isles*, *Madame Barré*, *Madame Vaucher*, *Madame Werle*, *Monsieur Galland*, *Monsieur G. Natchet*, *Ornement des Massifs*, *Pacquita*, *Rival Stella*, *Rose Rendatler*, *Sheen Rival*, *Stella*, *The Clipper*, *Triomphe de Gergoviat*, *Virgo Marie*, *White Perfection*.

Twelve variegated.—*Alma*, *Annie*, *Countess of Warwick*, *Flower of Spring*, *Golden Chain*, *Golden Pheasant*, *Lady Plymouth*, *Mrs. Pollock*, *Queen of Queens*, *The Countess*, *United Italy*, *Variegated Stella*.

Twelve Best Bedders, not variegated.—*Attraction*, scarlet; *Black Dwarf*, crimson; *Christine*, rose-pink; *Cybister*, scarlet-crimson; *Galanthisflora*, white; *Jean Valjean*, salmon; *Lady Middleton*, cerise; *Madame Barré*, rose-pink; *Punch*, scarlet; *Rose Queen*, light rose; *Stella*, crimson-scarlet; *White Tom Thumb*, white.

Six Best Bedders, variegated.—*Alma*, *Cloth of Gold*, *Flower of Spring*, *Golden Vase*, *Silver Chain*, *Lady Plymouth*.

The Best of 1866.—*Alexandra*, crimson and magenta; *Andrew Marvel*,* vermilion-red; *Beauty of Oulton*, cerise; *Chieftain*, orange-scarlet; *Christabel*, white and pink; *Dowager Duchess of Sutherland*, cerise-scarlet; *Evangeline*,* white shaded blush; *Gladiator*, rosy-salmon; *H. W. Longfellow*,* deep salmon-flesh; *Kate Anderson*,* dazzling scarlet, the most brilliant horse-shoe leaved bedder known; *Le Grand*, carmine-scarlet; *Magna Charta*,* deep dull red, superb form; *May Queen*,* rose-pink; *Nimrod*, orange-scarlet; *Peach Nosegay*, peach; *Queen of Whites*, white; *Speaker*, scarlet and rose; *Wiltshire Lass*, rose-pink. The new varieties, with large top petals, raised by Mr. Hibberd and to be sent out by Mr. B. S. Williams, at 7s. 6d. each, are marked with an asterisk.

Variegated.—*Beauty of Guestwick*, white tricolor; *Lucy Grieve*, golden tricolor; *Rising Sun*, gold and cinnamon; *Spanish Beauty*, yellow tricolor.

GLADIOLI.—*Fifty cheap Varieties of first-rate quality.*—*Achille*, *Calypso*, *Ceres*, *Clemence*, *Comte de Morny*, *Diana*, *Chateaubriand*, *Duc de Malakoff*, *Dumortier*, *El Dorado*, *Endymion*, *Florian*, *Galathée*, *Geraldine*, *James Watts*, *Janire*, *John Bull*, *Junon*, *Le Poussin*, *Linne*, *Lord Granville*, *Lord Raglan*, *MacMahon*, *Madame Adele Souchet*, *Madame Basseville*, *Madame Binder*, *Madame de Vetry*, *Madame Haquin*, *Madame Periere*, *Madame Leseble*, *Madame Rabourdin*, *Maria*, *Mathilde de Landevoisin*, *Mazeppa*, *Mr. Marnock*, *Napoleon III.*, *Nemesis*, *Ninon de l'Enclos*, *Ophir*, *Oracle*, *Pallas*, *Penelope*, *Princess Clotilde*, *Princess Mathilde*, *Raphael*, *Reine Victoria*, *Rembrandt*, *Rubens*, *Velleda*, *Vesta*, *Vicomtesse de Belleval*.

Thirty new and newish Varieties.—*Charles Dickens*, *Charles Smith*, *Crystal Palace*, *Dr. Lindley*, *Edulia*, *Emperour Maximilian*, *Eurydice*, *Fulton*, *Imperatrice Eugenie*, *James Veitch*, *James Carter*, *John Waterer*, *L'Ornement des Parterres*, *Madame Allister*, *Madame De Sevigné*, *Madame Domage*, *Madame Furtado*, *Madame Isidore Salles*, *Madame Vilmorin*, *Mademoiselle Clara Loise*, *Marechal Vaillant*, *Meyerbeer*, *Milton*, *Monsieur Camille Bernardin*, *Peter Lawson*, *Prince of Wales*, *Princess of Wales*, *Roi Leopold*, *Stephenson*, *Walter Scott*.

HOLLYHOCKS.—*Fifty.*—(Best twelve marked thus*.)—*Alex. Shearer*,* *Black Knight**, *Beauty of Walden**, *Countess Russell**, *Crimson Royal*, *David Foulis**, *Dr. Canny*, *Excelsior*, *Empress Eugenie**, *Euphrosyne*, *Flora Macdonald**, *Gariibaldi**, *George Keith*, *Glory of Walden**, *Golden Fleece**, *Invincible*, *Illuminator*, *John Pow*, *Joshua Clarke**, *J. B. Ullett*, *Lady Dacres*, *Lady Palmerston*, *Lady Paxton*, *Lady King*, *Lilac Perfection*, *Lord Loughborough*, *Lord Taunton*, *Majestic*, *Miss Barrett*, *Monarch*, *Mrs. Balfour*, *Mrs. B. Cochrane*, *Mrs. F. Mackenzie*, *Nonsuch*, *Perfection*, *Primrose Gem*, *Princes*, *Pre-eminent*, *Prince Imperial*, *Princess of Wales*, *Purple Prince*, *Purple Standard**, *Queen Victoria*, *Rev. Joshua Dix*, *Rose Celestial*, *Rosy Gem*, *Royal Standard*, *Royal White**, *Stanstead Rival*, *William Blackwood*, *William Dean*, *William F. Edgar*.

PANSIES.—*Thirty-six.*—Miss E. Cochrane, Ladyburn Beauty, Francis Low, Princess of Prussia, Chancellor, Lord Clyde, Lady L. Dundas, Eclat, Lavinia, Kinleith, Masterpiece, Mary Lamb, Perfection, Jessie Laird, Chernb, Prince Imperial, Blink Jonny Cupid, Prince of Wales, Serena, Mrs. Laird, G. Wilson, Miss Muir, Bohn Elston, Attraction, A. M'Nab, Mrs. G. Potts, Queen of Whites, Rev. H. Dombrain, Alexander Whamond, David Inglis, James Fargie, Marquis of Tweeddale, Noir, William Dean.

PELARGONIUMS, SHOW.—*Twenty-four.*—Eurydice, John Hoyle, Mary Hoyle, Maiden's Blush, King of the Lilacs, Hector, Rosy Gem, Rozine, Sunny Memories, Startler, Bacchus, Beadsman, Conflagration, Fairest of the Fair, Festus, Guillaume Severeys, Duchesse de Morny, Lady Canning, Leotard, Lord Clyde, Osiris, Prince of Prussia, Queen of Whites, Rose Celestial.

PELARGONIUMS, FANCY.—*Twelve.*—Constance, Mrs. Brewer, Anne Page, Clara Novello, Bridesmaid, Delicatum, Clemanthe, Arabella Goddard, Crystal Beauty, Lady Craven, Roi des Fantaisies, Madame Sainton Dolby.

The Best of 1866.—Albertine, lake, dark top; Atalanta, rose, dark top; Baltic, scarlet and violet; Charles Turner, red and maroon; Conspicua, white and claret; Decision, rose and maroon; Gladiateur, orange and maroon; King Arthur, salmon and maroon; Marion, rose and maroon; Mrs. White, pink and black blotch; Nabob, rose, spotted; Progress, salmon-rose, spotted; Queen of the May, white, maroon top; Selina, crimson and maroon; Red Cross Knight, scarlet, spotted; William Hoyle, crimson and maroon; Lady Boston, crimson, fancy; Neatness, crimson and purple, fancy.

PENTSTEMONS.—*Twenty-four.*—Alphonse Karr, Albicans, Baroness, Semphill, Buckii, Carl Appellus, Charles Wood, Clio, Criterion, Flora, George Inglis, John Salter, Lord Elgin, Leonie Kien, Monarch, Major Stewart, Queen of Bines, Mrs. Pollock, Mrs. Steains, Odyle, Purple Prince, Rose of England, Roseus grandifloris, Scarlet Gem, Tynninghamii.

Pentstemons of 1866.—Grandifolius (Thompson), a fine species, with bluntly ovate glaucous leaves, and large pale blue flowers; John Bester (Downie & Co.), puce-blue, with purple stripes; Robert Parker (D. & Co.), rich rose, flaked with crimson; Shirley Hubbert (D. & Co.), warm rose-pink, finely striped.

PETUNIAS.—*Twelve Double.*—Adeine, Albert Victor, Atlante, Augustine Nivellet, Boule de Neige, Elsa Harmand, Inimitable flore pleno, Leviathan, Madame L'Huillier, Marie Stewart, Monsieur Caverot, Multiflora.

Twelve Single.—Abundance, Alba magna, Beauté des Parterres, Countess of Ellesmere, Duchess of Northumberland, Etoile de Cuire, François de Salle, Lucy Lemoine, Othello, President Muller, Princess Alexandra, Royalty.

Petunias (Double) of 1866.—Ben Nevis (Grieve), crimson and purple, blotched white; Bonnie Dundee (Grieve), rosy-purple, margin of white; Hazledean (Grieve), pure white, blotched lavender; Sidney (Bull), crimson violet, shaded white and mauve; Triumphans (Bull), pure white, with crimson blotches.

Petunias (Single).—Fanty (Bull), crimson, veined maroon, fine; Norbury (Bull), white, boldly barred with purple; Purple Bedder (B. S. Williams), habit robust and spreading; Splendida (B. S. Williams), pure white, with carmine bars.

PHLOXES.—*Twenty-four.*—Lady Copley, Princess of Wales, Atlas, Clio, Colonel Dundas, Dowineana, Duchess of Sutherland, Iphitus, Lady Abercrombie, Lady Musgrave, Madame Breon, Miss E. Spedding, Miss Hope, Miss Maiklam, Mr. Lithgow, Mrs. Buttar, Mrs. Collins Wood, Mrs. Dixon, Mrs. Sinclair Wemyss, Princess Alexandra, Rubens, Admiration, Liervalli, Countess of Home.

VERBENAS FOR BEDDING.—The best twelve established varieties are Lady Binning, crimson scarlet; Madame Lefevre, red, shaded violet; Purple King, Snowflake; Ocean Pearl, purple, with fine white eye; Lord Leigh, dazzling scarlet; Aristot Improved, puce; Geant des Batailles, crimson; L'Avenir de Ballant, carmine; Peep o'Day, rose-tinted salmon; La Grandeboule de Neige, fine white; Madlle. Marie Rendatler, dark blue, with white eye.

Verbenas of 1866.—Out of about forty to be sent out this season the following twelve are the best:—Admiral of the Blue (Perry), lilac blue, white eye; Beauty of England (Gill), pure white; Celestial Bine (Salter) cobalt blue, probably the finest of all bedding verbenas; Celestial Rose (Salter), fine rose bedder; Charles Perry (Perry), a great advance on L'Avenir de Ballant; Childe Harrold (E. G.

Henderson), rosy crimson bedder; Claret Queen (Wills), violet-crimson, shading claret, a good bedder; Crimson King (Methven), a superb crimson bedder; Fire Brigade (Kirtland), scarlet crimson, a model bedder, grows close, so as to cover the ground with a continuous sheet of colour; Princess Hilda, lavender, shaded blue; Really Blue (Bull), a fine blue bedder; Scarlet Cushion (Wills), bright scarlet, a fine bedder.

THE GARDEN GUIDE FOR APRIL.

FLOWERS OF THE MONTH.—*Greenhouse*: Cinerarias, Cytissus, Primulas, and Azaleas are now in their full splendour, in houses that have only fire enough to keep the frost out. In mixed collections of first-class character, we expect during the month to see some of the following in bloom—*Chorozeia angustifolia*, Hagelii, Henchmannii macrophylla; *Acacia conferta*, *Dillwyniaefolia*, *rotundifolia*, and several others; *Abutilon striatum*, *Anthocercis viscosa*, *Berkheya cuneata*, *Cantua bicolor*, *Aotus incana*, *Cytisus nubigenus*, *laniger*; *Actinotus helianthi*, *Athanasia tomentosa*, *Echium pætrum*, *giganteum*; *Hindsia alba*, *violacea*; *Daviesia angulata*, *polyphylla*, *genistoides*; *Datura Waymannii*, *Echeveria secunda*.—*Frame*: *Ner-cissus bulbocodium*, *nanum*, *poeticus*, *Dielytra spectabilis*, *Russian* and *Neapolitan* violets, *Scilla siberica*, *Ornithogalum umbellatum*, *Arabicum*, *pyramidalis*, *Leucojum vernum*.—*Ericas*: *dilecta*, *Banksiana*, *Cliffordiana*, *arborea*, *echiiflora*, *fascicularis*, *metulæfloræ*, *nivea*, *persoluta*, *perspicua nana*, *costata*, *racemosa*, *Smithiana*, *triflora*, *campanulata*, *trossula*, *amœna*, *Cistifolia*, *daphnoides*, *sulphurea*, *moschata*, *hybrida*, *mirabilis*, *oblata*, *Patersoniana*, *quadriflora*, *expansa*, *princeps carnea*.—*Orchids*: *Saccolabium miniatum*, *Vanda insignis*, *V. suavis*, *Arpophyllum giganteum*, *Burlingtonia fragrans*, *Leptotes serrulata*, *Cattleya Skinneri*, *Phalænopsis Schilleriana*, *Ærides Fieldingi*, *Dendrobium aduncum*, *D. anosum*, *D. chrysanthemum*, *D. clavatum*, *D. crepidatum*, *D. Dalhousianum*, *D. densiflorum album*, *D. fimbriatum*, *D. fimbriatum oculatum*, *D. lituiflorum*, *D. Pierardii latifolium*, *D. primulinum*, *D. triadenium*, *D. Wallichianum*, *Epidendrum bicornutum*, *E. macrochilum*, *E. macrochilum roseum*, *Odontoglossum Pescatorei*, *Oncidium ampliatus majus*, *O. sarcoodes*, *O. sessile*.

FRUITS IN SEASON.—*Apples*: Alfriston, K; Ashmead's Kernel, D; Boston Russet, D; Brabant Bellefleur, K D; Brownlee's Russet, K D; White Calville, K; Cockle Pippin, D; Coe's Golden Drop, D; Cornish Gilliflower, D; Court Pendu-plat, D; Dutch Mignonne, K D; Forman's Crew, D; Golden Harvey, D; Gooseberry Pippin, K; Hambeldon deux ans, K D; Holbert's Victoria, D; Hubbard's Pearmain, D; Lamb Abbey Pearmain, D; Lemon Pippin, K; Minier's Dumpling, K; Newtown Pippin, D; Nonpareil, D; Norfolk Beefing, K; Northern Greening, K; Northern Spy, K D; Ord's, D; Pile's Russet, D; Pinner Seedling, D; Reinette du Canada, K D; Reinette Grise, D; Reinette Van Mons, D; Ribston Pippin, D; Ross Nonpareil, D; Royal Russet, K; Screveton Golden Pippin, D; Spring Ribston, D; Striped Beefing, K; Sturmer Pippin, D; Sweeny Nonpareil, K; Tulip, D; Wheeler's Russet, D; Winter Pearmain, D; Winter Quoining, K D; Wyken Pippin, D.

Pears.—Angelique de Bordeaux, D'Avril, Bellissime d'Hiver, Bergamotte d'Esperen, Bergamotte d'Holland, Beurre Bretonneau, Beurre de Rance, Bezi de Bretagne, Bezi Goubault, Cassante de Mars, Easter Bergamot, Josephine de Malines, Morel, Prevost, Uvedale's St. Germain, K; Van de Weyer Bates, Zephirin Louis Gregoire, Inconnue, Easter Beurre, Ne plus meuris, Commissaire Delinotte, Aglaë Gregoire, Colmar Delabaut, Prince Albert, Madame Millet, Doyenne d'Alençon, Bezi Mai.

Grapes.—Of last year's crop there may still be good bunches of Lady Downe's Seedling, Kempsey Alicante, Trebbiano and Trentham Black. The early vinery may now supply one or all of the following:—Chasselas Musqué,* Muscat Hamburg,* Purple Constantia, Red Frontignan, White Frontignan,* Black Champion, Black Hamburg,* Black Prince, Trentham Black, Early Black Bordeaux,* Grove End Sweetwater, Early Chasselas, Muscat Lierval,* Early Auvergne Frontignan, Early Smyrna Frontignan,* Golden Hamburg, Royal Muscadine,* White Sweetwater. As this is a good time for planting vines (the very best months are March

and June), we have attached an asterisk to a few that are particularly well adapted for early forcing.

Strawberries.—The first batch of forced plants may supply ripe samples of Black Prince, Keen's Seedling, British Queen (seldom good before May), Prolific Hantbois, Prince of Wales, Sir Harry, Victoria, Cuthill's Princess Royal.

Peaches from the forcing-house may now be looked for; the first supplies will probably be any or all of the following:—Red Nutmeg, Small Mignonne, Early Grosse Mignonne, Early York, Abec.

Nectarines.—Fairchild's (second-rate, but early), Elruge, Rivers's White, Bowden.

Gooseberries.—The following may, in early districts, supply green berries for culinary purposes:—Early Sulphur, Early White, Keen's Seedling, Miss Bold, Wilmot's Early.

Figs.—Though it is early yet for supplies of ripe figs, the following varieties may furnish the table towards the end of the month:—Angelique, Black Provence, Early Violet, Marseilles, White Ischia.

GARDEN WORK.

Kitchen Garden.—Make up a bed for the main supply of cucumbers, and either sow at once on the bed, or turn out plants of previous sowings on to hillocks. Sow, in the open ground, seakale, rhubarb, asparagus, all kinds of cabbage, Scotch kale, brussels sprouts, broccoli, etc.; radishes, onions, lettuce, broad beans, peas, turnips, carrots, small salad, French and runner beans, spinach, beet, parsley, parsnips, American and Normandy cress, and sweet herbs. Sow, in heat, tomatoes, marrows, pumpkins, cucumbers, egg plants, capsicums, and celery. Use the hoe freely. Give water, during dry weather, to all crops that are coming forward.

Fruit Garden.—Finish grafting as soon as possible. Nail in wall-trees, and protect, without waiting till the blossoms open. There is nothing better than Haythorn's hexagon netting. Mulch newly-planted trees to encourage growth of roots, and let them be securely staked at once.

Flower Garden.—Herbaceous plants may still be got in, and sowings made for the present and next season. Sow a succession of annuals, and sow tender kinds in heat. Get carnations and picotees into their blooming-pots, and be careful not to injure the roots in shifting them. This is the best season to plant rockeries. Use the hoe on beds and borders, to keep down weeds.

Greenhouse and Stove.—Cuttings will bear a very brisk heat now, and may be shifted as fast as they make roots, and kept in quick growth. Use liquid manure to all plants showing bloom; get into cold pits the stock for bedding out next month. Train melons and cucumbers carefully, and stop as they reach the top of their trellises. Keep the air moist about pines, and use sulphur fumes for red spider. Greenhouse, 55° night, 60° to 65° day. Stove collections, 65° night, 75° day.

Forcing-house.—A brisk heat must be kept up where grapes and peaches are ripening, and on sunny days air must be given liberally to improve the colour and bloom of the fruit. Strawberries in the forcing-house must be close to the glass, and have plenty of air. Let the pots stand on a bed of dung, that the roots may obtain extra food.

NEWS OF THE MONTH.

INTERNATIONAL HORTICULTURAL EXHIBITION AND BOTANICAL CONGRESS.—The following is a list of local secretaries to whom application may be made for schedules, subscription forms, etc.:—Ascot—Mr. John Standish, Royal Nursery; Belfast—Mr. W. H. Ferguson, Botanic Gardens; Bradford—Mr. W. Dean, Shipley Nursery; Bristol—Mr. J. Garraway, Durdham Down Nursery; Chester—Mr. Arthur Dickson (F. and A. Dickson and Son), The Nurseries; Coventry—Mr. W. Miller, The Gardens, Combe Abbey; Derby—Mr. Cooling, Mile Ash Nursery; Dublin—Dr. W. E. Steele, Assistant Secretary of the Royal Horticultural Society of Ireland; Doncaster—Mr. James Tindall, The Gardens, Sprotborough Hall; Elgin and North Scotland—Mr. J. Webster, The Gardens, Gordon Castle, Fochabers, N.B.; Essex—Mr. John Warner, Broomfield, Chelmsford; Glasgow—Mr. J. Anderson, Meadowbank, Uddingstone; Hereford—Mr. N. Wynn, Midland Bank; Hertford—Mr. E. R.

Francis, The Nurseries; Ipswich—Mr. T. Blair, The Gardens, Shrubland Park; Jersey—Mr. C. B. Saunders, Cæsarian Nurseries, St. Saviour's;—Kelso and the South of Scotland.—Mr. W. Mien (Stuart and Mien), Kelso; Leamington—Mr. J. H. Hawley, Brunswick School; Manchester—Mr. John Shaw, Princes Street; Nottingham—Mr. E. J. Lowe, F.L.S., Highfield House; Oxford—Mr. W. H. Baxter, Botanic Gardens; Sleaford—Mr. D. Lumsden, The Gardens, Bloxholm Hall; Warrington—Mr. W. Bishop, The Gardens, Bewsey Hall.

At a meeting of horticulturalists held at Anderton's Hotel on Thursday, March 22nd, Mr. William Paul in the chair, it was resolved to hold a general horticultural dinner in London on Thursday, the 24th of May, to afford opportunities for social intercourse among nurserymen, gardeners, amateurs, and their friends, before the closing of the International Exhibition. The dinner will probably take place at St. James's Hall, and the tickets will be 10s. 6d. each.

ROYAL HORTICULTURAL SOCIETY.—Exhibition of Spring Flowers, March 15.—This, the first exhibition of the season, was particularly attractive. Hyacinths, tulips, and forced roses were especially beautiful and fine. There were also good collections of miscellaneous forced shrubs and herbaceous plants. *Hyacinths*.—Mr. William Paul, of Waltham Cross, put up a superb lot of eighteen hyacinths, remarkable alike for size, completeness, uniformity, and freshness. They consisted of Mont Blanc, Alba maxima, Lord Wellington, Von Schiller, Solfaterre, Koh-i-noor (with not a trace of green points), Macaulay, Garibaldi (wonderful for colour), Ida, General Havelock, King of the Blues, Laurens Koster, Van Speyk, Garrick, Charles Dickens, Grand Lilas, Marié, Feruk Khan. Messrs. Cutbush and Son exhibited in the same class La Vestale, Mont Blanc, Ida, Von Schiller, Macaulay, Solfaterre, Howard, Florence Nightingale, Princess Clothilde, Cavaignac, Robert Fortune, Grandeur à Merveille, Bleu Aimable, Charles Dickens, Marié, Grand Lilas, Baron Von Tuyll, Laurens Koster. Mr. Kirtland, of Albion Nursery, Stoke Newington, also competed in this class. In the class for amateurs (12), Mr. Young, gardener to R. Barclay, Esq., of Highgate, deservedly won the first prize; Mr. Bartlett, of Hammersmith, second. In the open class for six, Mr. William Paul was first, Messrs. Cutbush and Mr. Kirtland equal second. These three lots constituted the cream of the show, and as Mr. Kirtland's is a new name among exhibitors of hyacinths, we must do him the justice to say that his half-dozen were splendidly done; the fact of their ranking equal with those from Messrs. Cutbush being sufficient proof. Hyacinths grown in pots and glasses in windows were shown by Mr. Bartlett, Mrs. Young, and Mr. Beach. *Tulips* were in perfection, and there were plenty of them. Mr. Paul and Messrs. Cutbush divided the principal honours. In the best collections of twelve each, the most distinct varieties were Yellow and White Pottebakker, Couleur Cardinal, Keizerkroon, Cramoisie Royale, Duchess of Parma, Vermilion Brilliant, Duc d'Arenberg, Thomas Moore. Mr. Young and Mr. Bartlett were the principal exhibitors in the class for amateurs.

ROYAL BOTANIC SOCIETY, FIRST SPRING MEETING, MARCH 17.—There was a good show and a good company, and the weather improved as the day advanced. *Hyacinths* were the main feature, and Mr. W. Paul had the field pretty much to himself, taking first prize in the class for 18 with a collection that were as near absolute perfection as in the present state of our knowledge we can imagine. As at Kensington, Mr. Kirtland, a new exhibitor of hyacinths, made a sensation with his grand spikes, so on this occasion a new name appeared on a card in front of a splendid lot, the name being George Davis, of Stanley Nursery, Old Swan, Liverpool. Mr. Young again exhibited both large and small collections, and again took the place of honour as the leading amateur exhibitor. The most distinct and marked varieties in the show were the following:—Garibaldi, King of the Blues, Koh-i-noor, Ida, Grand Lilas, Lord Wellington, Madame Van der Hoop, Duc de Malakoff, Laurens Koster, Lord Macaulay, Schiller, Lord Palmerston (marvellously shaded), Feruk Khan (quite new, but shown in Mr. Paul's 18), Van Speyk, Prince Albert, Solfaterre, Haydn. *Tulips* were quite fresh, and in all cases good, Mr. Young having a remarkably fine collection of eighteen. The most distinct were Keizerkroon, Duchess of Parma, Proserpine, Rose Luisante, Thomas Moore, Vermilion Brilliant, White and Yellow Pottebakker, Cramoisie Royale, Molière, Canary Bird, Trianon. *Roses*.—Those from Messrs. Paul and Son, of Cheshunt, were marvellously beautiful; the leafage fresh and wax-like, the flowers in that tempting state of half-expansion in which the form and colour of a good rose are most perfectly displayed,

and the assortment so very choice that, irrespective of their irreproachable perfection of growth, it would be hard to beat them as varieties. One of the loveliest was *Alba rosea*, showing like Juno a rich shaded centre, with nearly pure white surroundings, and the general character that of a pouting beauty, sleepy and voluptuous. *Louise de Savoie*, one of the gems among the teas; *Victor Verdier*, brilliant in colour, and very nearly true scarlet, certainly several shades more like best red sealing-wax than the same flower appears in its summer bloom out of doors; *M. Bernardin*, fine in form and colour; *Prince Camille de Rohan*, *Madame de St. Joseph*, another gem among the teas; *Beauty of Waltham*; *President*, exquisitely beautiful; *Adam*; *Charles Lefebvre*; *Princess Mary of Cambridge*, this makes a fine show rose, large, bold, plenty of it, the colour clear fresh pinky-rose; on this occasion it was rather too full out, and did not look so refined as *Model of Perfection*, which is nearly the same shade of colour, and a very refined and highly-finished flower. *Novelties*.—*Mr. Bull* had a collection of *aucubas* in berry, and various odd ferns, palms, and other useful decorative plants, not the least important of them being a group of orange trees with ripe fruit on them. From the same, *Azalea punctulata*, flowers medium size and plentiful, specimens a foot high, having heads of flowers a foot across. The colours vary so much that no two are alike among hundreds; the prevailing colours are white, salmon red, and pink in all degrees of combination, but usually in stripes, spots, and splashes, in every case gay and peculiar. From *Mr. Wiggins*, gardener to *W. Beck, Esq.*, *Isleworth*, a whole batch of cyclamens with variegated leaves. They were all small bulbs in the smallest 60 size pots. Every plant had a great head of bloom, and there were several shades of colour, and the leaves spread out far beyond the pots, every leaf three inches long, and all marked in the style of *Begonia amabilis*, or *Madame Wagner*, the margin having lunulate patches of silvery grey on a fine deep green ground. These plants were all one year old. From *Messrs. F. and A. Smith*, of *Dulwich*, some new *cinerarias*. The best was *Model*, remarkable for its perfectly circular outline, flat, broad petals, sharply-defined margin of richest mauvy-crimson, clear narrow white ring, and neat grey disc. From *Messrs. E. G. Henderson*—*Primula prenicens*, *Mrs. Eyre Crab*, a very chaste double flower, the petals notched on the edge, the colouring consisting of stripes and patches of pinky-lilac on a pinky-blush ground; *Stewarti*, a large single variety, blotched and striped rose-pink, on a blush-white ground. From *Messrs. Paul and Son*—*Philadelphus grandiflorus speciosissimus*, a fine large-flowered mock orange, which will be as useful for forcing as for grouping with the choicest hardy flowering shrubs; *Dierilla multiflora*, the flowers axillary, in bunches of two to five each, deep crimson, with very conspicuous white stamens peeping out.

CUTBUSH AND SON'S EXHIBITION OF HYACINTHS AT THE CRYSTAL PALACE.—*Messrs. Cutbush and Son*, of *Highgate*, this year changed their course, and instead of an exhibition at their *Highgate* nurseries, appropriated a very suitable spot in the great house at *Sydenham*, and there out of their own resources alone made a grand display of their favourite flowers. Of course hyacinths and tulips took the lead, but with these were grouped *Deutzias*, *Azaleas*, *Primulas*, *Cyclamens*, *Narcissus*, forced *Solomon's Seal*, one of the loveliest things in the show, *Amaryllis*, *Rhododendrons*, *Epacris*, and a hundred other things radiant with colour, and, generally speaking, deliciously odorous. The following is a selection of the finest varieties of hyacinths in the whole exhibition. *White*, *Alba supersissima*, pure in colour, and forming a fine, long, graceful spike. *Alba maxima* is a fine spike, with fine bells. *Bridal Bouquet*, *Crown Princess of the Netherlands*, *Grande Vedette*, *Mary Stuart*, fine bells; *Madame Van der Hoop*, very fine, rather distinct, but superb bells; *Queen of the Netherlands*, a most elegant style of hyacinth, as pure as driven snow; *Reine Blanche*, a strong grower, the huge truss embosomed in broad beautiful leaves; *Ne Plus Ultra*, large, elegant bells, each with a distinct purple eye; *Virgo* is fine in spike, the bells elegantly formed, with the segments well faced. The best doubles in this series are *Grand Monarque de Paris*, with dark eye; *Jenny Lind*, early to bloom, and one of the best to force; *La Tour d'Auvergne*, an old favourite; *Prince of Waterloo*, large Bells and huge spike, first-rate for exhibition; *Sphæra mundi*, large blue centre, one of the latest. *Shaded white and blush* classes comprise some very beautiful varieties. *Elfrida* is an old favourite; *Grandeur à Merveille*, a favourite for exhibition, habit robust, spike large and symmetrical; *Mammoth*, very large bells, and a massive spike; *Norma*, warm, rosy-blush, robust, the bells very

large; Tubiflora, blush-white, the bells very large; Voltaire, wax-like in texture, almost a pure white, very symmetrical. The best doubles in this series lead off with Lord Wellington, which may be shown (as it has been by the writer of this) with bells two and a-half inches across, there is nothing to beat it for show purposes; Groot Voorst, superb, light blush; Triumph Blandina, blush, with lake eye, quite waxlike; Prince of Wales, fine blush; Anna Maria (a lady correspondent has just sent a spike in a box asking if it is a good one; it had fifty-four bells on it; the verdict is "fine"); Miss Kitty, blush with purple eye, apt to run up too much. The *rosy* class are much prized. Belle Quirine, pale flesh, striped carmine; Cavaignac, pink, with deep rose stripe, fine bells; Chapeau de Cardinal, rich salmon, tinted rose, very distinct and fine; Emmeline, lovely for colour; La Dame du Lac, one of the best, bright pink, changing when the green quits the tips to a very delightful shade of colour; Lord Wellington, the single form, a fine subject; Monsieur de Feasch, superbly variegated when full out, the colour lively pink; Temple of Apollo, a rare shade of rose, large and waxlike. Among the double varieties, the best are Acteur, long tube, the bells large, and the segments finely recurved, blush with pink stripe; Czar Nicholas, pale rose; Frederick the Great, bright pink; tipped rose; Regina Victoria, grand bells, pink with purple eye. *Dark reds and crimsons*: Garibaldi is the richest coloured of the established kinds, but it is dear; Robert Steiger is cheap and splendid, a fine deep rich shade of pinky red; Solfaterre is a half-guinea bulb, lovely in colour, two distinct shades of rosy scarlet and reddish orange; Von Schiller, grand dark red, one of the best for cultivation; Mademoiselle Rachel, lively rosy-red; L'Ami du Cœur, rosy-red; Amy, bright rich red, fine truss. The best doubles are Alida Louisa, a capital conservatory kind; Milton, a grand spike and good bells, colour rich bright red; Bonquet Tendre, one of the good cheap noble-habited kinds; Princess Royal, delicate rosy-red, a fine truss. The *light blue and porcelain* class give us Couronne de Celle, a fine pale blue; Grand Lilas, a cheap and first-rate variety, a nice shade of porcelain with white shades; Grand Vedette, also cheap, pale blue changing to white centre, bells large, habit robust; Porcelain Sceptre, azure tube, pale blue centre with mottling of purple, a fine truss. Here are some fine doubles: A-la-mode, porcelain, with violet eye; Blocksberg, bright azure, striped with white; Madame Marmont, pale lavender, fine bells; Prince Frederick, pale blue, very large; Van Speyk, a cheap kind, and one of the grandest. *True blue* has its representatives in some fine varieties. Argus is grand and cheap, blue with white centre; Baron Von Tayll, massive trusses, rich blue; Bleu mourant, cheap and superb, the truss very compact; Charles Dickens, good for every purpose, first-rate for exhibition, and largely grown for market—it is so sure, so good, so showy; Duke of Wellington, dark shaded porcelain; L'Ami du Cœur, fine violet blue; Nimrod, light blue, rather short, first-rate for conservatory, border, and market; Orondates, one of the very best, light shaded porcelain, a superb truss, cheap; Prins Van Saxe Weimar, fine dark, shaded blue. The best doubles are King of the Netherlands, rich blue, shaded margin; Sir Colin Campbell, dark blue, fine bells; and Laurens Koster is a grand double, dark blue with violet shade. The *darkest kinds* are valuable. Prince Albert, one of the cheapest, is one of the best, though a small spike and thin bells. The way to enjoy it is to place it on the table at night in a strong gaslight, it is then as black as ink; by daylight it is blackish purple, and decidedly pretty. Othello, Blackbird (expensive), La Nuit, Belle Africaine, William the First, all very dark and very good. The best doubles are General Havelock, fine purple changing to black as it gets old; Mehemet Ali, dark violet-blue, a fine flower; Kroon Van India, blackish-indigo; Keizer Alexander, violet, very double, and fine spike. A few of the *mauve and reddish-purple* kinds are good, particularly Haydn and Unique, both of them nearly a true mauve, or say reddish-puce; Honneur de Overveen, reddish lilac, large bells. Here the best doubles are Hermann, mauve, striped rose; Netherlands Glory, a most curious colour, a sort of orange-mauve, in its way a companion to Solfaterre; Pyramid of Pearls, a most chaste and beautiful shade of lilac. *Yellows* are few, and for the most part bad. Ida is a pure primrose, most beautiful in spike and bells, and shows to great advantage among violets; Soleil d'Or, straw-colour; Anna Carolina, good in its way as a yellow; Fleur d'Or, canary-yellow, not reliable, and wants a good heat; Heroine, pale yellow, tipped green, pretty; King of Holland, a good orange when well placed amongst blues or lilacs to bring out the colour, but standing alone third-rate. The best doubles are Double Heroine, Jaune Supreme, and La Grandeur.

TO CORRESPONDENTS.

COOL FERNERY.—*J. W.*—Your little house will make a capital fernery. You need not remove the brick floor, but may build the rockwork on it. The best material for the rockery is to be obtained from the brick-field—the large vitrified blocks of spoilt bricks, called in some parts “burrs,” being of suitable colour and texture, and requiring but little skill to turn them to good account. Old tree-roots will do; the only objection to their use is that sometimes they develop a growth of fungi to an extent that is amazing. Good rockeries may be made of rough blocks of stone, and the putting of them together is a matter of taste, except that it is well to place them so that there is a good body of soil for the ferns to root into, and suitable pockets for planting in.

CAMELLIAS.—*M. M. M.*—Having a bothouse with vines, an orchard-house not heated, and a conservatory opening out of drawing-room, we can very safely advise you to put the camellias in the first house with the vines till they have made a free growth, then take them to the orchard-house, and lastly put them out of doors. As to the question of atmospheric moisture, the vines will enjoy a considerable amount, except when they are in bloom. And you might manage to have your vines in bloom and the fruit set before putting the camellias in to grow. Further aid may be derived from the syringe, to moisten the wood of the camellias and promote a free growth. You evidently do not manure your camellias well, and we imagine there is something wrong about their roots. If they want repotting, let it be done at once, the soil to consist of two parts tough fibrous loam, and one part sandy peat. Many causes operate to cause the buds of camellias to fall. One of the most common is allowing them to be dry at the root when out of doors in autumn. The flower-buds are then formed, and they receive a shock which results in their falling off when they ought to expand. When the buds are swelling for bloom, the best manure-water is made by dissolving one pound of guano in thirty gallons of water, and adding one peck of soot tied in a coarse bag. The liquid, after standing a few days, should be drawn off quite clear for use. The liquid which flows from farm-yard manure is excellent, but must have six times its bulk of water added. Sheep's dung, one peck to thirty gallons of water, is a valuable stimulant. “Standen's Gardener's Friend” is the cleanest and most effectual of all the artificial manures.

TACSONIA IGNEA.—*M. M. M.*—As yours is a small plant, not growing freely, we suppose it to be restricted for root-room. If it does not grow freely, it cannot flower, and we therefore advise to give it a good border of fibry loam, with about a sixth part of leaf-mould added. The Lycopodium is probably kept too wet and too cold. You do not say which of the many species it is that turns brown, though it has plenty of water. As they all like warmth, plant a bit under a stage, or in some shady place in the warmest house you have.

EARTH-WORMS.—*G. E. C.*—You are doubtless aware that earth-worms are useful creatures, and it is not advisable to destroy them ruthlessly. The simplest way to destroy them is to throw about a peck of unslacked lime into six gallons of water, and after it has stood twenty-four hours, draw off the clear liquid, and water the ground which is infested by worms. The same lime will supply several solutions; so that, when the first water is drawn off, the vessel may be filled again. Still more effectual is a solution of corrosive sublimate, two drachms to every gallon of water. The best way to deal with weeds in gravel walks is to pull them out when the walks are soft after rain, and then roll the walks well. At this time of year, one may see at such places as the Crystal Palace dozens of boys engaged in rooting weeds out of the walks, the tool for the purpose being a short trowel like a knife. A coating of salt kills every weed, and sometimes damages the edges of the lawn, or the box edging as well; but in about six weeks the weeds appear again, and grow all the stronger because of the salt that still remains in the soil.

DANDY GERANIUM.—*L. N. R.*—Your favourite Dandy can only be made to grow freely by being kept in a warm house near the glass. Our old plants of it average two feet high, and two feet through, and flower profusely all the summer, but they are quite fifteen years old.

GLOXINIAS EATEN.—*L. N. R.*—The surface of the leaves being eaten away suggests the presence of some dipterous larva. Put a few fresh lettuce leaves amongst them, and some slices of apple. They will probably eat these instead of

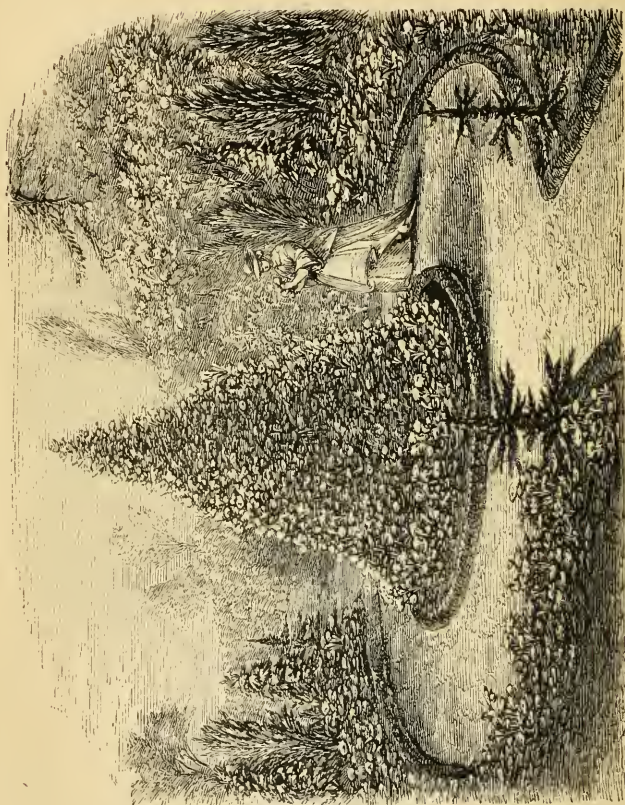
the gloxinia leaves. Gishurst' compound is very dear, though very good. In the majority of cases abundance of water at the roots will cure roses of mildew. So many papers have appeared in the FLORAL WORLD on potting and propagating roses, that we really must leave the subject alone a little while, or our readers will think us rose-mad. In the volumes for 1860 and 1862 all the modes of propagating roses are described and figured.

FLORA OF NICE, ETC.—*L. N. R.* wishes to know of a good book containing information of the ferns, flowers, land-shells, and butterflies found in the neighbourhood of Nice, Mentone, the Vaudois Valleys, and Wiesbaden.

IVY BORDER.—*Mrs. R.*—To make a nice ivy border is a very easy affair. The ground should be dug and well broken, and some manure added. The breadth of ground broken and manured for the purpose should be at least a foot wide, better if eighteen inches. Procure a supply of pot plants of Irish ivy three to five feet high. These may be obtained from almost any nursery at from one to two shillings per plant. Cut them all to three feet in length, and plant them three feet apart. When planted, train them all one way, and peg them down, placing the branches six inches apart, they must be planted firm, and have plenty of water when the weather is dry all through the first season; after which they will never want watering. When they begin to grow, have all the old leaves cut off, but without damage to the young shoots. Let them grow as they like all the season, but assiduously peg the new shoots so as to cover the ground regularly. The after management is a matter of clipping and pegging to taste. Common English ivy makes nice edging, but is not so quick or luxurious as the Irish. Where expense is no object, we should prefer for a green ivy edging, *Hedera helix taurica*, a beautiful small-leaved ivy; and for a silvery edging *Hedera helix argentea*, the most showy and free-growing of the variegated kinds. But for all ordinary purposes the Irish ivy is the best, and a well-made edging of it is beautiful after having been planted three years.

CULTURE OF THE MAIDENHAIR FERN.—I wish to say a few words in regard to the growing of the fern called *Adiantum capillus veneris*, which I got at Tintagel Castle in Cornwall. But not knowing anything of its habits, it all perished, as I afterwards found, for want of water. Having now made it a study, I beg permission to give a description of my plan of growing it. Choose your spot, and dig a kind of small well of three feet deep in the centre; having lined it securely with brick or burnt clay, carry a pipe from the nearest water to it to keep it always full of water, then build your fernery round it, taking care to build it so as to allow the pool to be seen from the path, or grass plot in which it stands. If you then place the roots of the maidenhair in the rockwork as near as possible to the water, it will soon flourish, and the pool, besides benefiting the other ferns, will be very picturesque.—*Felix*. [The short notes in the "Garden Oracle" of 1866 on Ferns that require peculiar management dispose of a whole batch of difficulties in fern culture, this among the number.]

THE COLCHICAN LAUREL.—*B. B.*—A high dry sandy soil is that which best suits the laurel; wet, cold clays are most inimical to its prosperity. Our occasionally severe winters do more harm to laurels than ungenial soils; in 1860 they were everywhere cut about and disfigured by wet and wind and frost, and have not even yet quite recovered. We call attention to the Colchican laurel, *Laurus colchicus*, as a far superior plant to the common laurel; it is, in fact, one of the most beautiful of evergreens, and is considerably harder than the laurel commonly in use. Instead of the dull heavy green we are accustomed to in laurels, the Colchican laurel has a rich and lively green hue, and the leaves glisten as if varnished. It is also very distinct in habit, the growth is regular, leaves longer, more taper, with a more distinctly serrated margin, and with longer foot-stalks than the common laurel. Added to these advantages, the Colchican laurel is never injured by our winters, and is therefore a safe and useful evergreen to plant in exposed situations where a screen or belt is required. It will be found a valuable plant to cover walls where plants of more delicate habit would not thrive; and as it does not require a moist soil, it may be tried on walls flanked by gravel paths, where it is often difficult to grow anything better than ivy. We are informed by Messrs. Lucombe and Pince, of Exeter, that in their nursery, which is exposed to fierce gales at certain seasons of the year, it far surpasses the common laurel in hardiness.



GERANIUM PYRAMID AT STOKE NEWINGTON.

THE FLORAL WORLD

AND

GARDEN GUIDE.

MAY, 1866.

A GERANIUM PYRAMID.



AS a striking and beautiful feature is often desired in a garden, it may interest some of our readers if I offer a few remarks on the formation of a geranium pyramid. The sketch which accompanies these observations was made in my garden last summer, and it faithfully represents a pyramid I had then in great perfection, and which afforded to myself and friends a considerable amount of entertainment. There is nothing new in such things; bold practitioners of bedding effects have long indulged in the formation of huge cones and pyramids of scarlet geraniums; and the extravagance of the thing will always secure for it a place in gardens, where there is the skill to do it, and a desire to get away somewhat from well-worn grooves and beaten paths. To extemporize a pyramid would not be an easy matter anywhere. It must be prepared for long beforehand. The plants used to form the pyramid in this sketch were in their tenth year when put out last year; but it need not occupy ten years to get up plants suitable for the purpose; it can be done in three years—better in five; and when once the plants have been grown to the right pattern, it is a very easy matter to keep them as many years as may be wished. To recite the history of my great old geraniums would be to misappropriate these pages; but those who have read the *FLORAL WORLD* during the whole of its career will know something about them, as I have several times dwelt upon their uses in bold decorations, and the comparative ease with which they may be wintered, and kept in full vigour, and blooming abundantly from year to year. But, instead of entering upon any general questions, let us suppose there is a pyramid to be formed; the question to be first disposed of is, How shall we begin?

The most certain and expeditious way would be to plant out in a good loamy soil, in a very sunny spot, a certain number of geraniums, which are to be allowed to grow, and are trained upright to stakes, to prevent injury in the event of storms. Mine have all been trained to walls several years in succession before they were used for a pyramid; and this plan may suit many who would like to get up a stock of plants for the purpose.

The varieties which I have found best are Queen, Reidii, Compactum, and Commander. The last-named is not so strong a grower as any of the others named, but as we want plants of various heights, it comes in well for the outside row. The finest of these for growth and bloom is Compactum, as it will make long rods, and produces plenty of large trusses. It is, however, not so bright a scarlet as Queen, which is truly superb in style of leaf and flower, and a tremendous grower, too. Reidii is rather wiry in habit, when grown tall, but it is thoroughly good, the leaf darkly zoned, the flowers bright scarlet, with clear white eye. Suppose a dozen plants of each of these to be planted out now. They would number in all forty-eight, which would suffice for a pyramid fifteen feet in diameter, and of any height to which the plants could be got—a matter dependent, of course, upon their age. They should be allowed to grow as they please, except that a little thinning of the growth might be desirable, and some stakes would really be needed to prevent breakage by wind. The Queen is most likely to want thinning, because it usually begins its growth by the production of a number of shoots, and soon presents a very compact appearance. But, as the season advances, this, and indeed all of them, will throw up some strong shoots, which is the very thing required of them. They will, perhaps, attain a height of five feet before the end of September. They must be taken up rather early, be potted in as small pots as will hold them, without cutting their roots very severely, and be at once placed in a lean-to greenhouse which has a south aspect. Eight-inch pots ought to take them, but if they can be got into six-inch pots, all the better. The pots must be well drained, and the soil must be poor loam, with plenty of grit or sifted lime-rubbish intermixed. To keep them up, it will be a good plan to train them out against the back wall; but if this is not convenient, tie the rods loosely to tall stakes, and pass a rope along in front of them, to keep them from swaying about. The object of housing them early is to get as much as possible of the long rods well ripened. Keep them cool and dry all winter. Three or four degrees of frost will do them no harm, if they are dry, but frost and damp will kill them. A heat sufficient to keep them growing all winter will scarcely be good, though I must confess I generally cut a few trusses from very large plants in the month of March, which is evidence of a few degrees more heat than they ought to have.

When May returns again, plant them out as before, either in a bed or against a wall. When they are planted, thin out the shoots at the bottom, and shorten all the rods to hard joints; that is to say, cut away so much of the top of all the shoots as is at all soft or swelled, or marked with brown specks, those brown specks occurring only on imperfectly-ripened wood. Do not aim at keeping them to one height, but prune them solely with a view to keep as much as possible of the hard, well-ripened wood; some will far outstrip the others in stature; let them; you will be glad in the end of a few very tall plants to fill the inner circles of the pyramid. They will again throw up fat rods from the base, and also fat shoots from the old rods. The end of it will be, that probably you will have plants

full six feet high at the end of the season, allowing for the pruning away of the soft tops, which, however, should not be done till spring.

The next season the pyramid may be ventured upon; but the plants are full young yet for the work, and ought to have two years' more growing. But as the cultivator can judge for himself whether it is expedient to use them, we will suppose them to be fit; and the next business is to consider the planting. I prefer to plant on the level; but it is impossible to do so until the plants are very tall and very strong, and it is seven years' work at least to have them fit for planting on the level. The alternative, in the case of young plants, is to raise the bed into a conical form, or rather into the form of an inverted basin, with a flat space in the centre, and rather steep sides. The height of the pyramid may be regulated by the height of the plants, or it may be less than the height of the tallest, because it is an easy matter to cut them down to fit. But its effect will depend very much upon its height, and I prefer to have it a few feet higher than the measure of the extreme breadth—a cone, in fact, with a sharp point, though we call it a pyramid, in order to be more readily understood, as the word cone is rarely used in garden literature. The question of importance is, How tall can you make it with the plants you have? You may make the centre pole two feet taller than your tallest plants, because the strongest shoots can be trained in to clothe the centre pole, and the two feet will be made good before the middle of July. Now, there are many ways of planting; but I have discovered one that is very effective and easy, and does not consume so many plants as the method ordinarily followed. I drive down in the exact centre a stout ash or larch pole, and take care to have it perfectly upright. Supposing that to be ten feet high, I proceed next to put in poles of seven feet in a circle about three feet from the centre, and all leaning in upon the centre, and lashed to it with tarred rope. Thus is formed a tent of poles, with a space inside which is to remain hollow. If you were to plant geraniums there, they would perish of suffocation. But when this tent is formed, I begin to plant outside it all the tallest plants I have, causing them to slant inwards, and tying them pretty firm with good bass to the slanting poles; but in this operation room must be allowed for the wood to swell. Next, I drive in another circle of slanting stakes, of five feet, at a distance of three feet from the last, and these are directed inwards, but are not all rigidly tied to the first circle, but are nevertheless made firm by a few lengths of rope here and there, as the eye may direct, while the work proceeds. A circle of the next-sized plants is set round these stakes, and trained in to them. Now, by a general scrutiny, it will be found that here an extra stake is wanted, here a rod must be shortened or cut out, etc., etc., allowance being made, of course, for the growth of the plants, which will soon hide stakes and ties, and destroy the harsh rigidity of the affair, which, in truth, is rather ridiculous at first. The last job will be to plant the smallest plants in a circle, and insert stakes as needed again, slanting stakes and plants inwards. The finishing may be a ring of strong plants of some free-growing variegated geranium, but a horseshoe-leaved scarlet will be better,

so as to have the bed alike throughout, from the top of the centre pole to the ground line outside. When standing on a lawn, or, as in my case, on gravel, the effect is much better when the pyramid consists of scarlet and green throughout, with an outside band of another colour. But every one to his taste; all that I am desirous of now is to offer some practical remarks on the larger part of the work.

All through the season the plants will want occasional attention, and the principal aim should be to train the growth inwards as much as possible, so as to produce a true cone as seen from all points. The knife must be used without fear to cut away any growth that threatens to spoil the contour; and as fat shoots are sure to rise from the bottom, thin away mere weedy or weak growths, to make a little room for these strong shoots, as, if they can be ripened, they make splendid rods for the next season. If the soil of the place is poor, it will be advisable to manure the plot where the plants are grown the first three or more years, and also the mound on which the pyramid is made. In an open, sunny position, these strong-growing geraniums flower quite as profusely on manured as on unmanured ground, but with this advantage, that they make very strong shoots; and such we require for this purpose. The matter of chief importance, when manure is used, is getting the growth of the year well ripened, and nothing favours that operation more than full exposure to a strong light after they are potted and placed under shelter.

It may be as well to inform any who might wish to make a pyramid instantanèe, by purchasing plants, that it is a rare occurrence to find plants fit for the purpose at any nursery. The sorts may be easily obtained, but tall plants are seldom to be found. At this time last year I was anxious to get rid of a stock of tall old plants that were in the way, and I advertised for a purchaser, but had not one application; so I burnt them. They were from seven to ten years old, and were fit for pyramids twelve feet high. Thus, we may consider tall geraniums not saleable, if you have them, and not obtainable, if you want them—a paradox not worth any great amount of thought.

SHIRLEY HIBBERD.

THE PHLOX.



THE lovely flowers of herbaceous phloxes are distinct from those of all other plants of similar habit in their exquisite symmetry of form and delicacy of colouring. They are for the most part very hardy, though judicious cultivators do not leave their collections entirely to the mercy of the weather all winter. We do not see phloxes as often as we should; amateurs are so crazy about geraniums and verbenas, which many of them cannot manage in a way to be thoroughly satisfactory, that their minds are drawn away from such a subject as the phlox, which is hardy, requires very little attention, and never fails

to make an ample return for whatever trouble is bestowed upon it. To grow phloxes, you need a mellow, deeply-stirred, and well-manured loam, and a sunny position. The plants should be set out one foot to eighteen inches apart, according to their height and robustness of habit, all the taller kinds requiring more room than the dwarfs. To propagate them is most easy. The best plants are those propagated in March or April, but strong stools may be divided in April or May, and if planted again with care will flower well. Plants that have survived the winter in the ground, or that have been kept in pots, begin to grow in March. The shoots should be cut away when an inch to two inches long, one or two of the lowest leaves removed, and be dibbled in close together in pans or pots, filled with any light sandy soil. A mixture of sand and peat is the best but it does not greatly matter what it is, if clean and sandy. These cuttings soon root if shut up close in a frame, and kept regularly sprinkled and shaded. The shortest mode of disposing of them is to allow them to grow in the pans till they are three or four inches high, and then to plant them where they are to flower. By this simple method they do well, and occasional watering and shading for a time after planting is, of course, beneficial. But a better plan is to pot them off separately in small pots as soon as rooted, and keep them in a frame till the pots are full of roots, giving them plenty of air, and planting out at last during moist weather.

To obtain a fine bloom, occasional watering will be necessary, and liquid manure may be used with advantage. But this trouble may be dispensed with, for if the soil is good, and well manured in the first instance, they only want a little watering for a week or two after being first planted, and for the rest of the season will take care of themselves. When first planted, slugs and snails are very fond of them. To prevent the ravages of these pests, plant with them a batch of lettuce, and while there is a young lettuce left, the phloxes will be untouched. When established, vermin will not touch them.

Phloxes make a good third or fourth row in the rear of geraniums and other bedders. The older and hardier kinds are superb shrubby ornaments; some of the pure whites, and rose and purple selfs, make huge tufts if left alone for several years, and flower earlier than the choicer kinds which are annually propagated. But for a fine bloom fit for exhibition purposes, the system of annual propagation should be followed, and a luxuriant growth should be promoted by affording them abundance of food.

Named phloxes are classed in two sections: the first bears more or less affinity to *P. suffruticosa*, which flowers in July and August; the second to *P. decussata*, which flowers in August, September, and October. As may well be understood, many of the varieties partake pretty equally of the characteristics of both sections. The selection which follows is made to comprise an equal number of each section; but it may be well to add that the late-flowering varieties are those which are in the highest repute. There is great sameness among phloxes, yet in the selection here offered the most distinct kinds only have been taken; and though in many instances the brief descriptions are the same, the varieties themselves differ sufficiently

to make them individually interesting, as they are all extremely beautiful, and well adapted to engage the attention of discriminating cultivators. The varieties named can be obtained at almost any respectable nursery; but if any difficulty should arise, I should recommend application to be made to Messrs. Downie, Laird, and Laing, Forest Hill, or Messrs. E. G. Henderson, St. John's Wood.

TWENTY-FOUR FINE EARLY-FLOWERING PHLOXES.

(Averaging 1s. each).

Abdel de Lepidinum, shaded rose.
 Abdel M. Khan, white and rose.
 Addisonii, white, carmine centre.
 Atlas, light rosy-lilac.
 Colonel Dundas, dark purple.
 Colonel Maclean, rosy-purple, shaded maroon.
 Countess of Haddington, purple-lake, crimson centre.
 Countess of Home, white, dark crimson eye.
 Countess of Morton, pure white.
 Lady Abercromby, white, crimson eye.
 Lady Musgrave, white, rosy-crimson eye.
 Lydia, French white, rose eye.
 Madame Breon, lilac striped.
 Magnet, shaded peach.
 Magnifica, shaded white, violet eye.
 Miss E. Spedding, white, crimson eye.
 Mr. Hollandre, white, pink eye.
 Mr. Lithgow, shaded rose-puce.
 Mrs. Bald, silvery-white, crimson eye.
 Mrs. Gillon, silvery-white, pink eye.
 Pearl, French white.
 Princess, deep peach.
 The Bride, white, light rose eye.
 Volcano, dark rose, red eye.

TWELVE FINE EARLY-FLOWERING PHLOXES.

(Averaging 1s. 6d. to 3s. 6d.)

Duchess of Hamilton, white, rose eye.
 Duchess of Sutherland, white, dwarf, very fragrant.
 Marbree, white, purple eye.
 Mrs. Buttar, white, shaded pink.
 Mrs. Collins Wood, white, rose eye.
 Mrs. Sinclair Wemyss, white, shaded rose, very fragrant.
 William Elder, rosy-purple, dwarf.
 Clio, white, pink eye.
 James Niven, rosy-purple.
 Mrs. Russell, white, rosy-purple eye.
 Cormack Brown, white, rosy-purple eye.
 Lady Margaret Wellwood, white, crimson eye.

TWENTY-FOUR FINE LATE-FLOWERING PHLOXES.

Suitable for a first-class border. (These will cost from 9d. to 1s. each.)

The first fourteen average eighteen inches high.

Baron de Bar, blush, and carmine eye.
 Felix Ferard, rose, pencilled white.
 General Brea, bright red, and dark eye.
 Laurelia, white, striped violet.
 Leodame, rose, and white eye.
 Madame Boucharlet, white, and lilac eye.
 Madame Fontaine, white, red eye.
 Madame Gouvain St. Cyr, peach, carmine eye.
 Madame Rollison, dark rose.
 Madame Hantin, peach, and white eye.
 Marquisat, rose, striped eye.
 Orientale, bright crimson.
 Rève d'Amour, peach, rose eye.
 Triomphe de Twickell, rose, striped white.

The following ten average twelve inches high.

Alice Allain, white, and pink eye.
 Candidissima nova, white.
 Comte de Chambord, white.
 Henri Lierval, red-purple.
 Jeanne Rouillard, blush.
 Leon Corbay, red-rose.
 Madame Rendatler, white, and lilac eye.
 Orientalis, dark red.
 Primulæflora, white.
 Vice-President Adam, red.

TWELVE FINE LATE-FLOWERING PHLOXES.

(Costing 1s. 6d. each.)

Anna Boleyn, cream and pink, dwarf.
 Apollon, purple, and rose eye.
 Bourbonensis, lilac, varying to white.
 Cedo Nulli, bronzed salmon.
 Fulvie, pale rose, white eye, dwarf.
 Hebe, lilac-peach, and dark cherry eye.
 John Salter, blush, striped rose.
 Le Lion, lilac, tipped purple.
 Louis Lierval, red-salmon.
 Madame Girardeau, pale blush, dwarf.
 Napoleon III., deep rose, striped.
 Princess Alexandra, white, crimson eye.

Brixton.

W. B. B.

CULTURE OF EUCHARIS AMAZONICA.

BY WILLIAM HOWARD, GARDENER TO JAMES BRAND, ESQ., BALHAM.



EUCHARIS AMAZONICA is a free-growing evergreen stove bulbous plant, with large thick dark green pointed ovate leaves, averaging eighteen inches long by nine inches wide, their footstalks measuring about twelve inches in length. The flowers are produced in a truss of six or more, the truss measuring six inches across, borne on a stem which lifts them just above the leaves. They are extremely beautiful, sweet-scented, waxy, pure white, and of great substance. So stout are they, indeed, that they may be worn in a lady's hair for several evenings in succession, if the precaution is taken to place them in water as soon as removed from the hair, and there let them remain till wanted again for the toilette. For that and other similar purposes, such as decorating vases, and for groups of flowers at festivals, it is one of the most beautiful and serviceable flowers known.

Being easily cultivated, and flowering twice a year, makes *Eucharis Amazonica* an invaluable plant in all collections. It should have plenty of pot room, and a liberal supply of water and liquid manure twice a week. It should be kept during the growing season in a stove well exposed to the sun. With about a dozen good large plants, there will be little difficulty in having some of them in flower all the year round. It is one of the easiest plants I know to bloom well. My plants are not shifted about from place to place; they stand in a span-roofed stove, plunged in leaves, with a bottom-heat of 70° to 75°, and the temperature of the house, from November to March, 60° to 70°, and during the other eight months 70° to 85° by day, reducing the temperature ten degrees by night. The result of this treatment is that some of my plants are always in bloom. I consider it quite a farce to shift the plants first into heat to grow, and then to a cool airy place, keeping them dry, so as to hasten the hardening process. If I had an aquatic house, I should let the pots stand in water one inch deep all the year round. The plant is found growing by the side of a river in Granada, and therefore aquatic treatment must be natural for it.

Pot the plants in equal parts of good rough lumpy loam, peat, and rotten cow or sheep's dung, if at hand; if not, some sweet dung from an old hotbed, taking care it is free from worms, adding a liberal supply of sharp silver or river sand, and a few small clean crocks, so as to keep the soil sweet and porous. Drain the pots very liberally, as nothing is so injurious to plants of any kind as bad drainage, and particularly *Eucharis*. Nevertheless, though well-drained, they delight in plenty of water, while they are growing freely; and they should be syringed twice a day with rain-water of the same temperature as the house; but they do not like to be stagnated, as it makes the soil sour, and the roots in consequence become unhealthy. The plants may be potted at any time of the

year, taking care not to damage the bulb or roots, and remove as much of the old soil as possible. Though I keep mine in the stove, it is a plant that is not very particular as to temperature; it will grow and bloom well in a temperature of from 50° to 85°. During the summer and autumnal months they will thrive remarkably well in a common dung frame, if well exposed to the sun and close to the glass, and syringed and shut up early in the afternoon. Should the plants be troubled with mealy-bug, plunge them in a sweet dung-bed, and it will disappear in a few weeks. Thrip and green-fly trouble them at times, but they may be sponged off or got rid of by smoking twice during an interval of four or five days.

The propagation of this fine plant is a very simple affair. The plant produces side-shoots, which may be taken off and potted in small pots. In about a year, if well managed, they will flower. Good plants may be had at any nursery at from 2s. 6d. to 5s. each.

ROCKWORK AND ROCKWORK PLANTS.

BY WILLIAM ROBINSON, F.L.S.



AS nearly every owner or cultivator of a garden has attempted some sort of rockwork or other on a small scale, it is quite unnecessary to advocate the attractiveness of that sort of gardening; and it is certain that if the "rockworks" we are now in the habit of seeing satisfy the tastes of their owners, those constructed on a true and sensible principle will afford them the highest delight. Rockwork! why almost every absurd conglomeration of bricks and burrs and stones that one sees exposing its dry sides to the view, is dignified by the term—how it is deserved we shall see.

The object of rockwork is, or ought to be, suitable soil and situation for growing and exhibiting the beauties of tiny and interesting plants that in a wild state resort to very rocky and stony places, seeking a subsistence where fat and leafy vegetation would have no chance, and of those beautiful mountaineers that grow away green and bright far above the limit of shrubby and herbaceous vegetation, where the fierce blast and bitter cold prevent them rising their tiny heads more than an inch or so from mother earth. Now such situations as they frequent can of course only be imitated on a very Lilliputian scale indeed in gardens, but the conditions which they delight in may be produced to perfection in the suburban, or even the town garden; and it must be brought about by first demolishing all the notions about rockwork which have given birth to those half-wall, half-load of brick, or stone-like abortions so prevalent in gardens. A great many beautiful sights are to be seen in our gardens by those who take the trouble to look for them. Roses, palms, florists' flowers, bedding plants, magnificent pot plants, and exquisite orchids may be without difficulty enjoyed by those who so desire, but where are you to find an open air rockwork on which the tasteful eye can rest for a moment with pleasure? It is the rarest

thing in British gardens, is a good rockwork, and when one is met with that is satisfactory from an artistic point of view, it is usually covered with rank vegetation sufficient to destroy all the chances the real alpine might have if planted. Probably the noblest rockworks in England are those at Chatsworth, where the noble wood-crowned hill behind the "Palace of the peak" suits the formation of such, and there they certainly have been made on a grand scale and by a tasteful hand. Ferns and herbaceous plants, etc., predominate, but the dwarf and genuine alpine plant is not favoured: indeed the great shoals and clefts do not suit things which like the full sun and free air, however much they may relish abundant water at the root.

The *best* rockwork in England is at York, in the nurseries of the Messrs. Backhouse. On it and about it at this day of the year may be seen a display of vegetable beauty and interest probably not to be had on any spot in the open air in the world! It is also the most real of rockworks, inasmuch as it is devoted chiefly to growing high alpine plants, and growing them successfully too. On it may be seen the rare and dwarf alpine *Dianthus* with grass-green leaves, clinging close to the earth as the moss does to the tree, and sending up in the early summer rich rosy flowers, round enough and stiff enough to please the most fastidious florist, on stems two inches high, in company with those lovely pale rose and rich purple and pure white primulas (*P. marginata*, *ciliata*, and *nivalis* respectively), not to mention numerous other species which are truly the glory of the high hills, as far above in beauty and brilliancy of flower, the natives of the valleys of temperate climes or even of torrid, as their home is above high water mark. This is no exaggeration, reader! When tiny primulas and gentians, that might be potted in a lady's thimble, produce trusses or even single flowers of transcendental vividness of colour, you may imagine what they are capable of when in their native home in the pure light and air of high European mountains. The gorgeous and fascinating entanglement of beauty of form and richness of colouring displayed in a Brazilian and Ceylonese forest, we have all heard of, and Humboldt and Darwin, and others, have taken some pains to record it for us, but even their impressions of delight and rapture fall short of those of botanists who have investigated the alpine flora. I cannot suppose that many readers have been fortunate enough to see such gentians as *bavarica* and *verna* in good condition, but it may be safely said that till those flowers are seen it is impossible to form an idea of the depth and vividness of their colouring. Mr. Atkins, of cyclamen renown, a gentleman with a great love and capital knowledge of alpine vegetation, has told me of having frequently spanned with his hand fifty flowers of one of these gentians fully opened at once on a plant not more than an inch high. Well, this great York rockwork grows hundreds of the choicest alpine in the world; but it has been the result of an expenditure which no other nurseryman would risk, and of a knowledge of the natural habits of alpine vegetation on the part of one of the firm, which few other botanists possess. Nearly 500 tons of millstone grit were employed in its

formation, and the whole looks the facsimile of a choicely-selected bit of Wales or Cumberland. By making the huge slabs and banks surround a little bit of water, every sort of aspect or nook that could be desired for a plant is at hand, and thus plants the most diverse in character are accommodated happily within a few feet of each other : under the shade of the great stones by the water, New Zealand filmy ferns ; a few feet higher up, natives of Arctic Europe ; and on the top, in the full sun and free air, the choicest gems of temperate parts of Europe and America.

By far the most distinct and extraordinary rockwork I have ever seen is one in a private garden near Chester, which I had the pleasure of visiting last summer in company with Mr. James Dickson, of Chester. It is on a large scale, though there are no colossal stones employed, as at Chatsworth and York. In the first place large banks of earth were thrown up around a pleasant garden, oblong in outline, and on the face of this great mound were built imitations of the various alpine mountains known to the noble lady who had it made at great expense. Bays and evergreens are clipped into comical shape here and there in spots to counterfeit conifers, and low down where the rocky pathway winds in and out about "the foot of the mountains" herbaceous vegetation predominates. A little higher up in a valley are little Swiss cottages (acting also as beehives), and then another turn round a corner covered with alpine shrubs and bushes, to look up a deeply worn valley "snow-capped" (with spar), and so on for several hundred feet. Altogether a very remarkable and striking scene, which I had better say no more about, as it very unlikely another of the same pattern may be made, while I hope thousands of simple design and real excellence as plant abodes may yet be seen.

It may be well to indicate a few of the differences between a good artificial or natural rockwork, and one of the prevalent type. In the chinks and fissures of a well-made or a natural rockwork, there is usually a moist bed of *debris*, or sandy gritty earth and sandy peat or loam ; and as into this the roots sink with eagerness, they there have at all times an abundant supply of moisture, and can then bear any amount of scorching sun. In the common kind of rockwork there is no fissure in the right sense of the word, and if there is, it leads to nothing except perhaps a little dry dust, which, perhaps, from the singular structure of the work, cannot by any means get wet, and thus when the plants are put on it they usually live about as long as they would if planted in a burning desert. Even the commonest and most voracious British weeds cannot "lay hold" of the things called rockworks that generally obtain. In a well-made rockwork soil and "a place for the plants" and roots is a leading consideration ; in the usual type the object seems to be the getting together of an agglomeration of ugly burrs or stones, with a wrinkle here and there, into which a little earth is shaken ; and finally, on good rockwork interesting vegetation should prevail all the year round, whereas in the ordinary type it is "put on" now and then to die. This applies to the rockwork of the professed maker nearly as much as to the work of the amateur practical

gardener. Some of the makers turn out very respectable-looking affairs made of bricks, etc., ingeniously covered with cement, but even the best of these, indoors or out, are failures as regards plant-growing, and there is more than one admired fernery-rockwork, which, if not embellished from a large stock at hand, would soon look a very poor affair indeed. I have seen a "rockwork" made against the back wall of a greenhouse, and by a professed hand, which was so perpendicular, and in which the "pockets" were so arranged that pegging on moss and sticking on ferns from month to month was a constant labour for the hapless gardener. That cost—I am afraid to say what it did cost, but it was a good deal more than Mr. Bewley's famous fernery at Dublin, and yet what a difference in the result! The best judges go hundreds of miles to see the fernery at Rockville, and pronounce it far before anything of the kind in existence; whereas in the other case a mass of stuff cocked up into little hillocks, and pock-marked over with holes, remains against the back wall of a low greenhouse, till the proprietor gets sick of its ceaseless expense without any beautiful result, and has it barrowed out or otherwise destroyed. By the way, the term "pocket," as usually applied to rockwork, is worthy of the ordinary type. Such a word should never be heard in connection with a good rockwork, and the hole it describes is rarely capable of growing even a common plant decently. The whole back, body, and bottom of every rockwork indoors or out, should be a mass of the soil that is most congenial to the plants it is intended to accommodate, and that is the only thing even remotely analogous to a "pocket" that is required. In such even a few spores or seeds shaken on will soon produce a genuine rockwork vegetation. Once a fibre reaches the motherly body of stuff in the interior little more danger to the plant it nourishes; it will sink and ramify, the plant will be happy under the brightest sun or driest winds; whereas in ordinary cases, as these unbearable "pockets" get dried out by a few days' sun or scorching winds, and then comes death or continual pumping and watering.

To make rockwork on the colossal and ambitious scale in which it is seen in some of the places I have mentioned, is of course out of the question to most readers, and indeed the simpler and less pretentious things of this kind are made the better, even where means are abundant. There are thousands and thousands of houses around London, and all other great towns, from the windows of which a well-covered bit of rockwork would look charming and refreshing, but in such little gardens the surroundings and many other considerations forbid any "tall" attempt in this way. As a rule, all straight-sided half-wall-like attempts should be avoided as bad, even where it may be done by the most tasteful hands. Never make them in the shade unless for ferns; the full sun and free air with plenty of moisture at the root is their delight. Lay it down in your mind that a rockwork suitable to a small or suburban garden should be well clothed with plants—the "rocks" indicating their presence by jutting forth here and there through the grateful green of the mossy saxifrages—and just showing a point where they are nearly smothered by some alpine that likes to rest its tiny

boughs against the stone. That will give most people ten times a better idea of rocks than if you lay the whole puny construction of the affair open, with a dot of green here and there.

The bare and doleful condition of some miles of little gardens passed by during a walk in the northern suburbs the other day, has induced me to write this paper. Ninety-nine out of every hundred looked as bad as bad could be, particularly with regard to the central bed, which in hundreds of cases contained nothing at all, and in respectable instances exhibited a paralysed *ancuba* or some other ailing evergreen. Now a host of people who love flowers but cannot grow them much, are satisfied if they can preserve "a bit of green;" but I very much doubt if a smoky and half-dead "evergreen" answers their purpose best, and from practical experience know that some of the most pleasing "greens" known may be readily grown in London, and are so grown in it. The central beds in most of those gardens offer the very best situations for planting them, particularly in cases where the spot is not much over-shadowed by trees. In many terraces, etc., large growing trees are not planted at all, and in such nothing can prevent the success of the low rock-work system.

My proposal is to slightly raise those beds and fill them with evergreen alpine plants, which will look as well or better at Christmas than at Midsummer, and form the most pleasant of all resting places for the usually tired eyes of those who dwell around large cities. The borders would afford sufficient space for flowers, if green in various shades was not preferred all round, which it might well be if flowers could not be decently grown in the garden from smoke or other causes.

To make a suitable home for these hardy and accommodating subjects, would at first require a little careful labour, and some as good soil as could be obtained, but it is not worth speaking of when we consider that no further trouble would be required for some years, and that an increasing progress would be observable in the plants instead of the quick decay and cheerless winter aspect of the common garden embellishments. It should be made somewhat as follows:—Excavate the bed, and if the soil is very wet or clayey, or otherwise objectionable, throw it out and utilize it in some way, and then place a few rustic slabs or burrs, as good as you can get them for the purpose, around the edge of your bed (let us suppose it is dug out at this juncture a foot below the level), and let them lie in different easy positions along the edge of the bed, so that the greater part of the stone may be buried when the bed is filled up, and that the stones may serve to raise the bed a little—here twelve inches, there five or six. Get as much simple diversity in it as convenient. Have the soil light and sandy, if possible "gritty" in some places, and fill up to about the level of the marginal stones. The next movement depends altogether on the size of the bed. If a large one it may be raised three or four feet in parts; if small, the best thing to do is to be satisfied with a rise of eighteen inches or two feet, which will be sufficiently effected by merely half-plunging a few slabs through the bed in addition to those that surround

the margin. Two of the prettiest and most effective beds I have ever seen were made in this way, and by the bare projection of the points of the stones here and there through the vegetation, looked more suggestive of rockery than an infinitely more costly and complicated structure. When a larger bed or mound is making, instead of making the first layer of the foundation rest immediately or nearly over it, they should fall back so as to leave one foot of soil exposed in one spot, and from that to three or even four, and then begin again as bold as you like, according to the size of the bed. This will allow of a varied and luxuriant vegetation to half cover and contrast beautifully with the stones that rise towards the back or centre. Of course anything like regularity in the disposal of the edges would tend to ugliness; I merely so speak for simplicity sake. No one spot in the whole should resemble another, and the dip and connection of the stones with the soil should be so managed that the soil could not run down with watering, etc. The planting of free-rooting things in some spots would help that, and indeed it would not be desirable to plant any but free-rooting things on such compositions. In making more pretentious work against banks, etc., the same principle should be carried out—*i.e.*, to rise more gradually and leave plenty of soil exposed in ledges, etc., for planting when all is over. Of course there is nothing to prevent the work being carried as high as may be desired at the same time, as in this way they may be made much higher than by the nearly perpendicular plan.

A small rocky bed made in this way, fully exposed to the sun, and the soil silvery peat, and rough sand and grit, with good drainage, pure air, and abundant water, would grow the rarest and most beautiful alpine plants that have yet been introduced. The free and common kinds kindly dispense with the pure air and silvery peat. I can think of nothing prettier for the town and villa garden than one of those well-covered rocky beds.

The plants that would flourish on such are many, and easily obtained. A good wide clump of *Iberis* would delight in the situation, and look a neat green bush all the year round—white as snow about the beginning of May. The Pink—both the species and the florists' kinds will be less ragged and longer lived on it than on the level by far, and the colour of its leaves would contrast well with the delightful green of the mossy *Saxifrage*, so well developed in mid-winter, when almost every other plant is in rags, or at rest. The *Aubrietias* would run up and down the chinks, and look far better wrapping themselves round the stone than ever they do on the level. *Alyssum saxatile*, which is so indispensable to the spring gardener, but which usually rots off on the London clay during the winter, would form a dense imperishable bush on it, and of course the *Arabis* would not object to it, that being at home everywhere. Then the variegated *Arabis lucida*, and the still brighter and prettier *Arabis procurrens variegata*, would look very smart on a select spot, and contrast capitally with their neighbours. What could equal the position for the more select kinds of hardy variegated plants? The purple Shamrock, purple *Oxalis*, variegated Cocksfoot, *Festuca glauca*,

silvery *Artemesias*, dwarf *Gnaphaliums*, and a dozen other good things, would look well and do well on our rockwork. The house-leeks, of which it is not difficult to get half a dozen thoroughly distinct and hardy species, would be a great help, particularly *Californicum*, *arachnoideum*, *hirtum*, and the common one. *Sedums* might be had in sufficient profusion to make a beautiful bed of themselves, so great is the variety of form and colour that exists among them, from *Sieboldii* on one hand, to *sexangulare* on the other, and all hardy as stones, and some very pretty in flower. All are pretty as regards the leafage. *S. Ewersii*, *glaucum*, *album*, *Rhodiola*, *Kamtschaticum* (a fine orange-flowering species), and *anglicum*, may be named as among the most distinct and easily obtained. Many people find a difficulty in getting good things in this way, but the fine collections now accumulated and accumulating at the York and several other nurseries will furnish nearly everything that may be required by the most fastidious, which may not be obtained in a local nursery. A supplement to their 1865 catalogue has just been issued by the Messrs. Backhouse, and we learn from good authority that the demand for alpine is increasing wonderfully. This is good news, but the extended cultivation which they deserve will not occur till good examples of the kind of thing I am now advocating may be seen in our public gardens. At present there is nothing of the kind—nothing like a brilliant or beautiful rockwork—in any public garden in the three kingdoms! I say brilliant, because I know from experience they may be so made, even in summer, when the vivid spring flowers are past. *Calandrinia umbellata*, well grown, would alone do that. Of the *Saxifragas*, *pyramidalis*, *oppositifolia*, *Andrewsii*, *crustata*, *Stansfieldii*, and *rosularis*, should not be omitted. There are nearly 150 species of this genus now in cultivation in England, and all neat and pretty in habit. I do not name the choicer alpine, believing it best to begin with those free to get and grow, and those who succeed with them will be able to provide themselves with the choicer and more difficult kinds. The following grow as free as grass on sensibly made rockwork: *Silene alpestris* (pure white, and very dwarf and hardy), *Dianthus petraeus* (rose—the best of the whole tribe for the rockery), *Achillea tomentosa* (bright yellow), *Campanula*, (several dwarf species), *Erica carnea*, *Linaria alpina*, *Phlox verna*, *frondosa*, and *stolonifera*, *Alyssum spinosum*, *Veronica candida*, and *saxatilis*. I purposely omit *Primulas*, *Gentians*, etc., as they do so poorly in town gardens, and advise that *Sempervivums*, *Sedums*, and *Saxifragas* should be used more than any others, as they are sure to do well anywhere.

Spring bulbs, such as *Bulbocodium*, *Snowflake*, *Scilla*, etc., might be dropped in with advantage here and there. *Hepaticas* would flourish on the shady side; and in fact there are not many hardy and interesting dwarf plants which might not be provided with a place where they would not only grow, but thrive, on such an arrangement. It may be made and planted at almost any season, but perhaps best of all during the present month. Watered for a few weeks after planting, the plants would not mind the check, and would have begun to cover their allotted space by the end of summer.

CULTIVATION OF ERYTHRINA CRISTA-GALLI.



SHOULD not recommend the amateur to raise a plant of this from a cutting; but recommend him to obtain early in the year a two or three year old plant or root. Repot it in the first week of March (to bloom in August) in a compost of rough fibry turf, a little peat in a rough state, leaf-mould, charcoal, and silver-sand, with good drainage—the turf not to be too old. If your turf is new—that is, with the grass green—roast it slightly upon the furnace fire to kill the insects. The pot to be plunged in a tan-bed for six weeks; the shoots will then be five or six inches long. Cut out all the weak growth, and leave from four to six of the strongest shoots, taking care when young to bend the shoots as near the edge of the pot as possible—that is, from the crown to the pot edge—placing the sticks round the edge of the pot, tying near the top of pot without breaking the shoot, leaving the stronger shoot for the centre. By this means you will have foliage to the edge of the pot, and a more compact plant than when trained straight from the crown. Probably many amateurs may not have a tan-bed, and those that have only a greenhouse may say that they could not follow this plan because of the trouble and time. To those I should most decidedly say, persevere, and try and try again. To make a tan-bed in a greenhouse, you only require to take the deals of the front stage, the sides of which from the flue may be formed of slates. This, filled with bark, makes a good bed for bottom-heat, and not expensive, and will be found to be very useful to start plants into growth in spring.

But to our subject. After the plant has made five or six inches growth, the pot should be raised and set upon the bed for a week or two, after which the plant should be transferred to the greenhouse, or if the bed is in the greenhouse, to the coolest part, syringing both morning and evening, not forgetting to give the roots a good supply when wanted—but mind, not regularly every day. About the middle of June, take the plant to the cold frame. Those that have no cold frame may place it in a sheltered spot out of doors, with a calico covering over the plant to protect from rain. The object in placing in the frames is to receive the dews upon the foliage at night, which is much better than syringing. By this means the foliage will be of a beautiful dark glossy colour, and will extend from the top shoot to the rim of the pot, making what is called a well-furnished specimen.

A week or ten days before the exhibition, the plant should again be placed in the greenhouse near the glass, where the flowers will both colour and expand most beautifully. I had a plant, treated precisely as stated, last year, with thirteen flowering spikes. The plant was only 3 feet 6 inches in height and 3 feet through, in an 18-inch pot, with foliage to the top of the pot, of a dark glossy green colour.

AMATEUR.

THE NEAPOLITAN VIOLET.

BY MR. JAMES BARNES, OF BICTON.



Y the middle of April, or thereabouts, this favourite but rarely well-grown violet will have finished flowering, and the time will have arrived to see about next season's stock of plants. Runners are thrown out then all round the old blooming plants. Procure some healthy sweet soil, pretty open and sandy, and cast it all over your bed of Neapolitans; then take a broom, or your fingers, and work it in amongst them. This should be done when they are dry, in order that the soil may slip or run down amongst and between their foliage, and not smother them. Then, if rain is not at hand, water well down with a coarse-rosed water-pot. In this way the young shoots soon begin to root round the parent stem. If the weather turns out hot and dry, we at once stick in and about some green boughs, a foot or eighteen inches in height, to partially shade them; for violets do not like hot and parching summer sun, it subjects them to red spider, etc. Keep them well watered if the weather does not prove showery, and water should be applied only in the evenings, after the sun has gone behind the trees, or on cloudy mornings, or mildew will result. In about eighteen or twenty days those runners will be well rooted. Fork them out, and select only the well-rooted, cleanest, and strongest of the young plants, casting the old and weak young plants away. Then plant any quantity you like of the strong young ones on well-prepared ground in a north or shady aspect, one foot apart; keep them clear all the summer by frequent hoeings, and cut off all side-runners; and of course, if long drought sets in, their progress will be assisted by giving a good dose of water now and then, but not by often sprinkling dribbles, which is pretty sure to produce mildew. By October they will be robust, sturdy plants, showing abundance of bloom. They are then ready to take up and remove to the sunny side of the hedge, into pits, frames, or some nice warm place or corner. For our early or first-crop flowers, we have common turf-built pits, into which we cast eighteen or twenty inches of fermenting materials, such as decayed leaves, etc., etc. This produces a gentle, genial warmth, and good drainage, and on to this is placed six or eight inches of healthy sweet soil. The plants are then taken up from their summer quarters, carefully and quickly, with balls of earth, and placed regularly all over, according to size and foliage, so that they nearly touch each other. The distance is generally from nine to twelve inches apart, and glass lights are at once placed over them. It is astonishing how soon they get established, and thrive and blossom, with such beautiful large blooms, and nice green shining foliage. The lights are always drawn off in suitable weather all the winter through, and free air given at other times. It is the lack of it that produces damping mildew, etc.: keep them

hardy, and they will be clear of all disease, and produce abundance of bloom. We usually plant the length of fifteen or eighteen lights, and others are planted in warm corners in the open air. The cheap turf-pits are exceedingly useful at all seasons; when the violets are taken out, we use the pits for early carrots, late cucumbers, etc., etc.

CULTURE OF DEUTZIA GRACILIS.

BY MR. CLARKE, GARDENER AT SIDNEY LODGE, WIMBLEDON.



TO propagate this plant successfully, cuttings should be taken as early in the spring as they can be got; we will say March. If placed in silver-sand, and put in a sweet bottom-heat, they will strike as readily as verbenas, although not quite so quickly. It usually takes them a month to get well rooted. They must then be potted in 60-sized pots, in moderately light sandy soil; after this they should receive the benefit of bottom-heat for a fortnight. A warm greenhouse will then suit them till they have filled the pots full of roots, which will be about the middle of June; after this expose them gradually out of doors for a week.

My plan of proceeding for the after-management is as follows: A piece of ground under a south-west wall is well manured and carefully forked in; here the plants are turned out of the pots a foot apart each way, and during summer they are weeded and watered when necessary. The following March I cut the plants down to within an inch of the ground; the vacant spaces are then lightly forked up, and about a couple of inches of good rotten dung laid between the plants, which will act as a mulching through the summer. In this position they will make a good growth much more so than by any system of pot-culture that can be adopted; and every one must admit with infinitely less trouble. If it is desirable to flower some of them the next season, every alternate plant must be potted early in October, and receive the protection of a pit or frame to encourage them to make fresh roots before winter sets in. Every alternate plant must be left in the ground. Those potted for flowering must be encouraged to make roots by being syringed and shut up early in the afternoon of bright days. Hardy as they are, those for forcing ought not to be exposed to more than three or four degrees of frost, just to harden the wood, and send them to rest early. The plants now remaining in the border must go through the same ordeal of cutting down as they did the previous year, but fork in neatly a good quantity of manure and a little leaf-soil; this will encourage a strong growth, and by the next autumn they ought to have made shoots two feet in length. To make the above remarks more intelligible, I had better add here that this plant, under ordinary cultivation, requires exactly the same treatment as the raspberry, which it is well known produces its fruit upon the wood of

the previous year's growth; and the *Deutzia gracilis*, when grown as it should be, and which every careful observer must have noticed, furnishes us with its charming white flowers under exactly the same conditions. But I must not fail to observe there is this difference between the two plants; that the wood of the raspberry when it has borne its fruit dies down, but in the *Deutzia* it retains its vitality for years, and when well treated scarcely ever omits to flower. It is this fact which leads many to suppose that their course of treatment is the correct one; but this is a mistake, for immediately the plant has done flowering, all the old, or last year's wood, should be cut out; and while the operator is doing this he will observe a number of young shoots springing up from the bottom; these should be left, and by taking away the old wood these young ones receive all the strength of the roots.

Those who wish to grow them on in pots should cut them down one week previous to potting, when a great part of the old soil should be shaken away from the roots, and pots a size larger be used for the shift. A mixture of good turfy loam and well-decomposed stable dung is a suitable soil for them, and they must always be potted firm. The most important object being to encourage a strong growth, if too many young shoots should spring up from the bottom, they should be thinned out; for a 24-size pot, not more than seven should be left. They must have every chance of making a quick growth, which they will do better if they can be shaded from very bright sunshine up to the end of September. The shade of a south-west wall I have found to suit them admirably. After this they should be fully exposed till they have had five or six degrees of frost; this exposure will ripen the young wood, and the frost will arrest vegetation; and if after this they are kept pretty dry at the root, they will be fit for forcing by the first week in December, if they are wanted thus early.

To my mind, the system of pot-culture is a troublesome and needless affair. Why should we go through all this routine of potting and watering, when there are other means more simple and more satisfactory, which I shall dwell upon presently? As I feel sure the above plan of cutting down has not been practised by many, I may here say that I am confident, when they have once adopted it, they will never return to the old method, for not only has the plant a more healthy and luxuriant appearance, but the individual flowers are much larger, and plants so grown have altogether a much more prepossessing appearance as compared with those that are flowering upon old wood.

The plan of growing it which I should recommend for all ordinary circumstances is the following:—As soon as done flowering, cut out the old wood, and in a few days after turn out the plants in some rich piece of ground in the kitchen garden. I am in this case presuming the plants have flowered naturally, so that the planting out will not take place till all danger of frost is past, which might check the young wood which they always make when they are flowered under glass. The plants will want water in dry weather, but clear water should be used till the plants have got well hold of

the ground, which will be about the end of June; after which a good dose of manure-water, once a week, would benefit them up till the end of August. If continued longer than this, it might induce a too succulent growth, which will be liable to feel the effects of early autumn frost. The remarks which I have made above about potting and syringing will be applicable in this case if they are wanted to flower early.

To grow the plants from cuttings to make nice objects is, I know, a work of time; still very much can be done by good cultivation; but even to buy they are very cheap, for a good stout plant can be had for a shilling, and it is of such plants as these that I shall now speak. Early in the autumn of 1860 I received a dozen such plants to fill a small bed in an herbaceous garden, and I determined to see what could be done by the liberal use of good fat dung and copious drenchings of manure-water through the season of growth. The plants flowered the first and second year in this bed, under the cutting-down system, and they had done remarkably well, but as they were not strictly herbaceous plants, the proprietor pronounced them unsuitable for the position they occupied. But they were suffered to complete the season's growth, which I encouraged by the application of stimulants, for I was anxious to see to what length and substance the young wood could be grown in one year. At the end of the year some of the shoots measured three feet nine inches, but it must be remembered this bed from the first received special attention by being made very rich with manure. The plants were potted with their roots considerably reduced, at the end of November, and placed in a cold pit secured from frost; and as leisure permitted I took them to the greenhouse, and there trained some of them into a variety of shapes—some on wire, and some on sticks. It is a great recommendation in this plant that it will admit of its young wood being twisted and turned into any shape that may suit the taste of the cultivator. Amongst the number of plants which I had (for experiment) subjected to the unnatural plan of training, was one of a globe shape; this plant occupied a 10-inch pot. I allowed it to flower naturally in a cool greenhouse, and it was in its greatest beauty about the middle of April. It was admitted by all who saw it to be a magnificent specimen, for it was literally covered from top to bottom with a sheet of white flowers, with just sufficient of its pea-green leaves to show its full character. It had the honour of being carried nine miles to occupy a prominent position on the table of a wedding breakfast. But for all this I am no advocate for so many sticks and ties; to me a plant never looks better than when it is allowed to flower in the way that nature has provided, but still there are many cases in which some training is desirable. To secure such plants as the above, they should be allowed to stand through one winter without being moved. This is to be easily done if enough plants can be obtained and planted out, and half of them allowed to stand every year.

THE MERRY MONTH OF MAY.

On, joyful is the day,
 In the sunny month of May,
 When bands of merry-hearted maids go laughing in the light ;
 When hedges gleam like snow,
 Where hawthorn bushes blow,
 And linnets warble in the croft like angels out of sight.

'Tis joyful where the streams
 Sparkle 'neath the golden beams,
 And the daisy-dotted meadow laughs like silver-crested sea ;
 When the blackbird and the thrush
 Flit from field to greening bush,
 And ply their merry piping 'neath the shadow of the tree.

Now sails the bee along,
 With a fairy sort of song,
 Or a soft and soothing humming like the play of angel's wing,—
 And the bonny lark so high
 Beats against the dappled sky,
 With a canticle that stirs a heart to leap aloft and sing.

'Twas such a blushing May,
 In the virgin time of day,
 That lured the Roman ladies forth to vales and mountains high ;
 And back to classic Greece,
 Ere Jason sought the fleece,
 The multitude went forth to sing their May-day psalms of joy.

To Flora, queen of flowers,
 They scattered perfumed showers
 Of choicest buds and blossoms from the forest and the field ;
 And to Venus at her shrine
 They paid homage all divine,
 And unto both such worship gave as grateful hearts could yield.

So, when broke the May-day smile
 Over Britain's wooded isle,
 The Druids went with mighty songs, to herald in the dawn ;
 They struck their golden shields,
 As they marched o'er grassy fields,
 And throngs of joyful worshippers were gathered ere the morn.

And when the blood-red sun
 His May-day march begun,
 A million throbbing hearts poured forth their gratitude in prayer ;
 The golden splendour grew,
 The chorus swelled anew,
 And May-day benedictions fell on all who worshipped there.

So let us heed the time,
 When the year is in its prime,
 To worship Him who sent the birds to bless us with their song ;
 Who hung aloft the sun,
 In his whirling course to run,
 That each renewing year might pass with fruitfulness along.

And who that has a heart,
 Could play the sordid part
 Of speaking harsh or frowning down a suppliant in May ?
 There are lessons all around,
 From blue sky to budding ground,
 Which teach the joy of kindness to our brothers in the clay.

So, like the nodding flowers,
 Spend your few and fleeting hours,
 Diffusing soothing incense to each bruised and broken heart ;
 And like the merry birds,
 Utter none but pleasant words,
 Though bitterness and scorn survive where hate still plays its part.

So shall you bless the grass,
 And the shadows as they pass ;
 For many gaps of beauty you may gather for the day,
 There are not too many friends
 For the soul that sorrow bends ;
 And the heart may still grow kinder 'mid the budding bloom of May.

POT CULTURE OF THE VINE.

From long experience I have proved the following method of cultivating vines in pots to answer most admirably. The Black Hamburg is perhaps the best kind for pot-culture ; but I have also found the White Frontignan to succeed well ; the latter sets its fruit best in the coolest part of the house. I prefer buds from old spurs to any other. About the middle of January the prunings are introduced into heat, to forward the buds previous to potting, and in the first week in February the buds are prepared in the usual way. I insert one only in a four-inch pot, just covering the wood ; I use leaf-mould finely sifted, mixed with a small portion of silver sand. The pots are then plunged half their depth into a bottom-heat of about seventy degrees ; if the young vines receive due attention, they will require a shift in the middle of April into eight-inch pots, using a mixture of well-rotted cow-dung, leaf-mould, and strong loam, in equal proportions. I then again subject them to bottom-heat, until the roots fairly show that another shift is wanted, which is the final one. I employ at this shift fifteen-inch pots, and use a soil composed of three parts strong loam and the other part cow-dung. I train near the glass with a view to ripen the wood effectually, and pay strict attention to stopping the laterals, preserving the main branch to the length of eight feet ; I always allow one foot in addition to the bearing wood, in case of a bud starting at the top, which it often does when the vines are luxuriant. During the growing stage of the vines in the fruiting pots, I apply liquid manure once a week made from cow-dung ; and when the shoots exhibit a tinge of brown, I pick out the laterals with my finger and thumb, retaining the leaves, and two or three laterals at the extremity. When the wood is fully matured, water is gradually withheld, and the vines pruned to the required length, and stored away in a dry shed exposed to the north winds ; there they remain until they are required for forcing. A week previously to introducing them into heat, the plants receive a thorough watering with clear liquid manure in a tepid state. Treated as above described, they fruit most abundantly ; the number of good-sized branches I manage generally to bring to perfection is from ten to fifteen on each vine. I may mention that I moss the stems for about a foot and a half in height from the surface of the pots ; the stems root freely into the moss by keeping it continually moist. When the fruit is swelling, I supply the plants liberally with the liquid manure above mentioned, and in addition I apply guano water once in eight days in the proportion of about a pound of guano to a gallon of water ; by this application I have proved that three or four pounds of fruit may be brought to perfection on a vine. The pots are placed in pans on a flue and trained near the glass. F.

NEW PLANTS.

BAUHINIA TOMENTOSA, var. *glabra* (Bot. Mag., t. 5530).—Leguminosæ. A handsome stove shrub, from Bembe, in Benguela, also native of Ceylon, Malabar, and Natal.

It is of slender habit, branches long and pendulous, leaves two-lobed, cordate at the base; racemes few-flowered, the flowers pale yellow, with deep purple blotch at the base of the upper petal.

CAMELLIA ROMA RISORTA (L'Illustr. Hort., t. 465).—A beautiful continental variety, the flowers large, globular, with broad, stout petals, richly mottled deep red, on a reddish pink ground. It is rose-like in character, and has a noble foliage.

GLADIOLUS PAPILIO, the butterfly-flowered Gladiolus (Bot. Mag., t. 5565).—Iridææ. A beautiful species, obtained from the Cape, through Mr. Arnot, of Colesberg, for the Royal Gardens at Kew; also met with by Mr. M. W. Saunders's collector, Cooper. It attains a height of three feet; leaves sword-shaped; spike a foot long, many-flowered; flowers one to two inches apart, subcampanulate, expanding an inch and a half; upper segments pale purple, with a faint dash of yellow; lower lobes with broad deep purple central band, beyond which is a band of gold, the margin pale purple.

PERISTROPHE LANCEOLARIA, lance-leaved Peristrophe (Bot. Mag., t. 5566).—Acanthaceæ. A beautiful herbaceous stove-plant, from Moulmein, flowering in winter, and continuing in full beauty for several weeks.

It branches freely; the leaves are three to five inches long, oblong-lanceolate, panicles terminal, terminated by three-flowered narrow heads; corolla pale purple, with a slender tube.

BATEMANNIA GRANDIFLORA, large-flowered Batemannia (Bot. Mag., t. 5567).—Orchideæ. A handsome plant, introduced many years ago by Linden, from New Granada, but still extremely rare. The pseudo-bulbs are two or three inches long, bearing two large lanceolate leathery leaves; flower-scapes much shorter than the leaves, three to five-flowered. Sepals sharp-pointed, all the same size, olive, striped with reddish brown. Petals rather smaller, similarly coloured. Lip with a short claw, three-lobed, fringed, white, with purple streaks, and orange coloured calli at the base. Though belonging to the class of "cool orchids," it requires more warmth than the generality of such. The flowering season is spring.

DIFFENBACHIA GIGANTEA, gigantic Diffenbachia (L'Illustr. Hort., t. 470).—Aracææ. A stove herbaceous plant, native of Para, Brazil. It is the largest known species of

the genus to which it belongs, and of stately and beautiful appearance. The leaf-



BAUHINIA TOMENTOSA.



GLADIOLUS PAPILIO.

stalks are elegantly mottled cream colour and pale green, the leaves a fine dark green, with large white spots.

CAMELLIA CLODIA (*L' Illust. Hort.*, t. 473).—An Italian variety, possessing some highly attractive features; the flower is large, the petals lobed, and slightly reflected, the colour purplish-red, sparsely marked with marbled stripes. It is a bold and showy, but not a highly-finished flower.

BOUGAINVILLEA SPECTABILIS var. *LATERITIA*, "*Lateritia*"-coloured *Bougainvillea* (*L' Illust. Hort.*, t. 466).—Nyctaginaceæ. A variety of a well-known climber, distinguished from its parent by the colour of the floral bracts, which, instead of being a rich mauve, are what is called "*lateritia* red"—a colour which may be otherwise described as orange-red shaded with pink.

MARANTA SPLENDIDA, the splendid *Maranta* (*L' Illust. Hort.*, t. 467).—Marantaceæ. A noble species, producing large subcordate leaves, which are marked with oblique bars of yellowish green and olive-green alternately; the under side dull purple.

BIGNONIA ARGYREO-VIOLASCENS, the silver, rose, and violet-tinted *Bignonia* (*L' Illust. Hort.*, t. 469).—Bignoniaceæ. A delicate stove climber, from the tropical parts of South America. The oblong-cordate leaves are beautifully mottled dark green on a grey ground, or rich chocolate purple, with yellowish green veins.

PEPEROMIA MARMORATA, marble-leaved *Peperomia* (*Bot. Mag.*, t. 5568).—

Piperaceæ. A beautiful stove herbaceous plant, from South Brazil. The stem is freely branched, stout, and short; leaves ovate-cordate, beautifully marbled cold grey and two or three shades of green. The inflorescence a slender green spike.

ERICINELLA MANNII, *Cameroon's Mountain Heath* (*Bot. Mag.*, t. 5569).—Ericaceæ. A slender, graceful, erect shrub, with close-set, wiry, linear leaves set in whorls of fours; flowers three or four together at the ends of the branches, nearly globose, one-tenth of an inch long, bright red.

TACSONIA VAN-VOLXEMII, *Van Volxem's Passion Flower* (*Bot. Mag.*, t. 5571).

—Passifloreæ. A grand South American climber, of free growth, and said to resist a temperature of the freezing-point in its own country. It has slender stems, leaves deeply three-lobed, three to five inches long, the flowers produced singly on slender stems, ten to twenty inches long; they are five to seven inches in diameter, bright red; calyx tube green, three-quarters of an inch long; corona inconspicuous. Succeeds well in a warm greenhouse, and has been finely flowered both at Kew and in the

nursery of Messrs. Lucombe and Pince, of Exeter. This valuable plant deserves a place in every greenhouse which affords room for a rampant climber, its fine free



PERISTROPHE LANCEOLARIA.



BATEMANIA GRANDIFLORA.

habit and its glorious flowers give it as high a degree of importance for the cool conservatory as the lovely *Bougainvillea spectabilis* has acquired in the stove and intermediate houses. The following account of its management at Exeter, by Mr. Pince, will supply all needful information as to its management:—"Tacsonia Van-Volxemii is undoubtedly one of the finest conservatory climbers ever introduced, second only to the justly and universally admired *Lapageria rosea*. The healthiness, vigour, and rapidity of its growth combine to make it highly desirable for producing immediate effect in conservatory decoration. The flowers, which are of a rosy crimson colour (fully five inches in diameter) are freely produced from the axil of each leaf, and are gracefully suspended on long, slender foot-stalks, a foot in length, so peculiarly slender and thread-like, that the flowers hang, as it were, clear and detached from the foliage, and have the appearance of brilliantly-coloured parachutes suspended in the air. Our plant was put into our show-house (the temperature of which is only that of an average conservatory, air being freely admitted, and the thermometer frequently falling as low as 38° to 40° in winter) in the middle of April 1865, and it has covered the ornamental rafter which spans the house, has been clothed with flowers all through the summer, and now, at the end of January, is still adorned with them. The foliage is also remarkably good, and free from that coarseness which detracts much from other Tacsonias. Our plant, which is now twenty feet long, with numerous branches, is growing in a mixture of rough peat, loam, and coarse sand, with abundance of drainage, and plenty of pieces of broken brickbats, crocks, sandstone, and old lime rubble, mixed in with the soil. Occasional syringing and copious supplies of water to the roots during summer and autumn, promote luxuriant growth. It may be requisite now and then to cut back vigorous shoots, which have flowered, in order to bring up fresh flowering stems. From the pendent position of the flowers, it is obvious that this beautiful climber can be seen to better advantage trained to a rafter or the roof of the conservatory, than if put against a wall. I have alluded to its comparative hardiness, in support of which, and in addition to the general lowness of the temperature of our show-house, I may say, in conclusion, that we had a plant of it growing luxuriantly on an eastern wall, out of doors, all last summer and autumn.

MILTONIA ANCEPS, *two-edged-stemmed Miltonia* (*Bot. Mag.*, t. 5572).—Orchideæ. This singular *Miltonia* was originally introduced from Brazil by Messrs. Loddiges, but appears to have been lost. It was lately sent to Messrs. Low and Co., by Mr. Blunt, and was flowered at Knypersley in the spring of 1865. The pseudo-bulbs are two-leaved; flowers one on each scape; sepals and petals yellowish olive; lip lyre-shaped, white, with a few purple streaks and dots.

MUSSENDATA LUTEOLA, *Captain Grant's Mussenda* (*Bot. Mag.*, t. 5572).—Rubiaceæ. A pretty shrub, introduced by Captain Grant, with many other plants, acquired during his memorable exploration of the sources of the Nile. It is of twiggy growth, the leaves ovate-lanceolate, dark green; flowers in compact corymbs, canary yellow, accompanied with the large white bracts (enlarged calyx teeth) peculiar to the genus.

THE GARDEN GUIDE FOR MAY.

FLOWERS OF THE MONTH.—*Greenhouse*: *Clethra quercifolia*, *Clianthus puniceus*, *C. carneus*, *C. Dampieri*, *Sempervivum aizoides*, *S. canariense*, *Leptodactylon Californicum*, *Diosma succulenta*, *D. subulata*, *D. rubra*, *D. corymbosa*, *Epacris grandiflora*, *E. miniata*, *Diplacus glutinosus*, *Eutaxia pungens*, *Gastrolobium speciosum*, *Dillwynia sericea*, *D. junipera*, *D. speciosa*, *Olea dioica*, *O. Americana*, *Eucnilius oboordatus*, *Berchemia floribunda*, *Gardoquia multiflora*, *Habrothamnus elegans*, *Grevillea acuminata*, *Bignonia capreolata*, *Gompholobium angustifolium*.—*Frame*: *Deutzia scabra*, if not forced, is now in its full beauty. Double wall-flowers in pots are now at their best; *Ornithogalum thyrsoides*; various species of *Genistas*, *Cytisus*, *Coronilla*, and a few of the early-flowering *Ixias*; also *Dielytra spectabilis*, *Sempervivum arachnoideum*, *Echeveria secunda*.—*Ericas*: *Andromeda-flora*, *daphnæflora*, *cinerascens*, *Coventryana*, *Lawsoni*, *crassifolia*, *viridi purpurea*, *dumosa*, *erubescens*, *ferruginea*, *longiflora*, *primuloides*, *procera*, *refulgens*, *Rus-*

selliana, tubiflora, turgida, vestita blanda, ardens, floribunda, celsiana, baccans, calycina capitata, perspicua.—*Orchids*: *Saccolabium retusum*, *Ærides odoratum* cornutum, *Æ. virens*, *Æ. virens grandiflorum*, *Æ. virens superbum*, *Coryanthes macrantha*, *Stanhopea grandiflora*, *Brassia maculata major*, *B. verrucosa*, *Epidendrum cinnabarinum*, *E. Stamfordianum*, *Chysis bractescens*, *Saccolabium ampullaceum*, *S. curvifolium*, *S. Guttatum*, *S. præmorsum*, *Calanthe veratrifolia*, *Cattleya citrina* and quadricolor, *C. Edithiana*, *C. intermedia violacea*, *C. lobata*, *Cypripedium villosum*, *Dendrobium Devonianum*, *D. Falconeri*, *D. longicornu majus*, *D. transparens*, *D. tortile*, *Lælia grandis*, *L. purpurata*, *L. purpurata Williamsii*, *Chysis Limminghii*.—*Garden*: *Saxifraga purpurascens*, *S. cæspitosa*, *S. rotundifolium*, *S. Pennsylvanica*, *S. oppositifolium*, *S. cymbalaria*, *S. aizoon*, *S. geranifolia*, *Statice Fortuni*, *Aquilegia alpina*, *A. Skinneri*, *A. glandulosa*, *Gentiana angustifolia*, *Nemophila paniculata*, *Symphitum echinatum*, *S. asperum*, *Thalictrum aquilegifolium*, *Leontodon aureum*, *Ranunculus ficaria*, *Echium violaceum*, *Phlox subulata*, *P. ovata*, *Tragopogon porrifolius*, *Lychnis diurna plena*, *Papaver croceum*, *P. orientale*, *Trollium Europeus*, *Cerastium tomentosum*, *C. Biebersteinii*, *Ajuga genevensis*, *Gentiana altaica*, *Anthemis tomentosa*, *Linum sibericum*, *Geranium Lancastriense*, *Salvia chamædrifolia*, *Saponaria ocymoides*.

FRUITS IN SEASON.—*Apples*: Ashmead's Kernel, D; Brownlee's Russet, K D; Coe's Golden Drop, D; Cornish Gilliflower, D; French Crab, K D; Hambledon deux ans, K D; Holbert's Victoria, D; Minier's Dumpling, K; Nonpareil, D; Norfolk Beefing, K; Northern Spy, D; Ord's Apple, D; Reinette du Canada, K D; Reinette Van Mons, D; Ribston Pippin, D; Royal Russet, K; Spring Ribston, D; Striped Beefing, K; Sturmer Pippin, D; Winter Quoining, K D.

Pears.—Bergamotte d'Hollande, Beurré Bretonneau, Beurré de Rance, Crassante de Mars, Fortunée, K; Josephine de Malines, Leon le Clerc de Laval, K; Van de Weyer Bates.

Grapes of last year's crop are quite over now, and the only supplies are those furnished from the early vinery. The following are now in season:—Early Chasselas, Golden Hamburg, White Sweetwater, White Frontignan, Red Frontignan, Chasselas Musqué, Muscat Hamburg, Purple Constantia, Black Hamburg, Black Prince, Trentham Black, Lady Downe's Seedling. It is early yet for Muscats to be in fine condition, but Bowood Muscat, Causton Hall Muscat, and Muscat of Alexandria will be coming in soon from first-class heated vineries.

Strawberries.—The forcing-house and pit will supply Black Prince, Keen's Seedling, Wilmot's Prince Arthur, Swainstone's Seedling, Sir Charles Napier, Ingram's Prince of Wales, May Queen, British Queen. The last, if forced with skill, has its proper flavour now.

Peaches.—The early peach-houses should now supply good samples of Small Mignonne, Abec, Acton Scott, Early Grosse Mignonne, Early York.

Nectarines.—Bowden, Hardwicke, Hunt's Tawney.

Cherries.—Adams's Crown,* Baumann's May,* Belle d'Orleans,* Black Tartarian, Bowyer's Early Heart, Early Purple Gean, Knight's Early Black, Werder's Early Black.* The best four of these for forcing marked with asterisk.

Figs.—Angelique, Brown Turkey, White Ischia, Early Violet, Marseilles.

GARDEN WORK.

Kitchen Garden.—In cutting asparagus, take only the strongest shoots. Give plenty of water and weak liquid manure. Transplant from seed-beds as fast as the young plants get at all thick, and use the hoe wherever weeds appear, so as to keep them down, before they have time to flower. Plant out capsicums and tomatoes under a hot wall, and cover with bell-glasses till rooted. Sprinkle soot over the ground, and hoe it in a few days afterwards. Sow broad beans, peas, radish, celery, onions, cabbages, cauliflower, borecole, beet, kidney beans (main crop), lettuce, small salads, spinach, turnips, carrots, endive, and cucumbers for planting out on ridges early in June.

Fruit Garden.—Thin the fruit on wall-trees, and syringe all trees that are at all affected with vermin. Clear weeds away from strawberry-beds as fast as they appear. A regular system of disbudding wall-trees should now commence, with a view to get regular growth, and all but wholly supersede the use of the pruning-knife. Rub off every bud that breaks where a shoot is not wanted, and continue the operation during the whole of the summer. Give plenty of water to strawberries

in dry weather, and, occasionally, a pretty strong dose of liquid manure. Cut away runners, unless wanted for increase of stock.

Flower Garden.—Strike chrysanthemums in a shady border under hand-lights, and, when rooted, plant out in fat loam, enriched with old dung. Top-dress pinks with rotten dung, and point over the surface with a small fork. Plants for show should have only one flowering stem, and not more than four buds left on that. Plants out dahlias the third week. Take cuttings from hardy border plants, which have double flowers. Place auriculas on a hard bed of tiles, to enjoy air and rain. Plant annuals from seed-pans, and get out the hardiest of the bedding stock, beginning always with calceolarias. Keep lawns and walks very trim, by means of scythe, roller, and shears.

Greenhouse and Stove.—Get as many plants as possible into frames and pits. Strike fuchsias, geraniums, verbenas, and petunias, for blooming in pots in the autumn. Stop them frequently, to get bushy growths. Cut down cinerarias that have bloomed, and plant the stools for offsets. Cut in pelargoniums that have flowered, and strike the best of the cuttings. Calceolarias coming into bloom should have a shady part of the house, and the pots plunged in moss. Camellias should be kept warm and moist, to induce a quick growth of new wood; those that have made their young shoots should have air by degrees, preparatory to turning them out for the summer. Keep the syringe and fumigator in frequent use. Thin the bunches of vines that have set their fruit, and put sulphur paint on the pipes whenever red spider appears. Fire heat to be dispensed with as much as possible. Stove 65° to 70° at night; 75° to 85° by day; Pines require 75° at night, and 85° to 90° by day.

NEWS OF THE MONTH.

INTERNATIONAL HORTICULTURAL EXHIBITION AND BOTANICAL CONGRESS.—This is the last opportunity we shall have in these pages of saying a word in anticipation of this great exhibition, which, it is expected by its promoters, will equal the best of the international exhibitions that have been held on the continent, and far transcend all former attempts of the same kind in this country. The exhibition will be held under canvas, on ground belonging to the Royal Horticultural Society, and the principal entrance to it will be from Cromwell Road. The space to be covered with canvas comprises an area of over 3½ acres! The length is 563 feet, the breadth 293 feet, and the height in the centre 30 feet. The whole of the ground is laid out in banks, walks, and symmetrical blocks, so as to allow of the picturesque grouping of the plants, and the production of a complete and harmonious effect. It is to be, in fact, a carrying out, on an immensely large scale, the admirable system of displaying plants on sloping grass banks, which has been carried out with such signal success by the Royal Botanic Society of London during many years past. There will be 55,000 superficial feet devoted to plants, and 60,000 superficial feet devoted to the promenades, which will accommodate 15,000 persons at one time. A portion of the building will be heated for orchids and other tender plants. The plans of the building and earthworks are the production of Mr. J. Gibson, the able Superintendent of Battersea Park. The exhibition will open on the 22nd of this month, and close on the 25th. On the 23rd there will be a grand international banquet in the Guildhall of the City of London, tickets for which will be charged three guineas each. On the 24th there will be a great horticultural dinner at St. Martin's Hall, Long Acre, London, tickets for which will be charged half a guinea each. Respecting other details, we must refer our readers to current announcements, as at the time of penning these notes many important matters are still undecided.

ROYAL BOTANIC SOCIETY.—At the exhibition held on the 7th of April, Azaleas and Cinerarias were shown in great plenty, those from Messrs. Lane and Son, Mrs. Turner, and Messrs. Ivery, of Dorking, were especially good. Messrs. Lane sent a large collection, comprising over thirty of the best Azaleas in cultivation, amongst which the most conspicuous for beauty were the following:—Iveryana, fine white with occasional stripes; Sir Henry Havelock, salmon-rose; Leopold I.,

large rose ; President Clayer, rosy-salmon edged white, top spotted rosy-crimson ; Duke of Cambridge, strong rose-red ; Madame Mieliez, fine large white ; Souvenir de l'Exposition, delicate blush deepening to rosy-purple ; Madame A. Verschaffelt, large, warm flesh, top rich carmine spots ; Perryana, intense red ; Magnificent, fine white ; Eulalie Van Geert, flesh, top rich rose ; Advance, intense purplish-rose with carmine top ; Rosea alba, rosy-blush, with soft carmine spots, in the way of Souvenir de l'Exposition, but with more colour ; Secrétaire Claus, blush with salmon shade and rosy-salmon spots ; Lord Clyde, small, neat, vivid carmine-red, nearly the same shade as Duke of Cambridge ; Reine des Blanches, large, fine form, pure white, with no shades or stripes of red, the centre delicately stained palest amber, a most beautiful variety ; Perfection, large, smooth, rich rose-pink ; Elegantissima, fine white with occasional salmon-red flowers and stripes, slight stain of straw in centre ; Rosea alba cincta, soft rosy flesh shading to rosy-pink, with fine pink spots on top petals ; Mars, deep strong red ; Holford, the grandest of the pink class, the colour intense, and tending to carmine ; Sinensis, one of the best known specific forms, the flowers small, bright-gold yellow with shade of orange. Those in want of a collection cannot do better than select any of the foregoing. Cinerarias were exhibited by Mr. James of Isleworth, Mr. Cox of Southwell, Mr. Marcham, Hanwell, and others ; and Messrs. F. and A. Smith brought forward a batch of new ones, the most remarkable of which was one called *Perfection*, the form perfect, the colour deep cobalt blue, with inner ring of crimson, and beaded ring of white, surrounding a grey disc. The best of the older kinds in the collections were Miss Watson, Modesta, Duke of Cambridge, Queen Victoria, Viola, Favourite, Flourish, Lord Elgin, Snowflake, Charles Dickens, Sir Joseph Paxton. Messrs. E. G. Henderson and Son, of St. John's Wood, sent a collection of tricolour geraniums, all of them gorgeously coloured. One of these, *Sophia Cusack*, is remarkable for the brilliant bars of dull fiery red which break through the chesnut zone, and extend occasionally through the rich golden margin. *Italia Unita* is richly but delicately coloured with dark zone, carmine bars and patches, and a creamy margin. *Lucy Greive* far surpasses Mrs. Pollock in the splendour of the zone and margin. Mr. B. S. Williams, of Victoria Nursery, Holloway, sent some noble groups of miscellaneous stove and greenhouse plants ; and very conspicuous indeed to the olfactories as well as to the optics were the splendid groups of *Cyclamen persicum*, from Messrs. E. G. Henderson, a department of cultivation in which they have always excelled, and have never been beaten.—*April 21.* At this exhibition pot roses were shown in great abundance and exquisite beauty by Messrs. Lane and Son, Messrs. Paul and Son, and by Mr. C. Turner. Some of the newer kinds were brought forward, but we defer our remarks upon them till we have seen more of them, as their true characters do not always come out in forced plants. Mr. Wiggins put up some noble specimens of pelargoniums, azaleas were shown in great plenty, cinerarias were getting past their best, auriculas and polyanthus were few and good. Among the novelties there was nothing of special interest or importance.

TO CORRESPONDENTS.

CAMELLIAS, BUDS FALLING.—*J. O.*—Complaints of the falling of camellia buds have been more frequent this season than any previous time within our experience, and we believe the failure must be charged to the account of 1865, when the long continuance of drought and strong sun-heat distressed the plants after they had formed their flower-buds. We have often had to explain in these pages, that the falling of camellia buds in spring is the result of the neglect of the plants when they are out of doors in autumn. At that time they have finished their growth, and the flower-buds are formed. If allowed to go quite dry, no immediate results are apparent, but the flower-buds never recover the shock. They swell when the plants are started in spring, but ultimately fall. That this is *really* the cause of the falling of the buds in the majority of cases we are quite sure, having put the matter to careful experiment some years ago, when, having a large collection of camellias, they were divided into two lots—one lot allowed to get dry frequently in autumn, the other lot kept moderately moist constantly. When housed at the end of the season, there was no difference perceptible in them ; but when the blooms

began to open on the plants that had never suffered, they began to fall from the plants that had been distressed. By that experiment, carefully conducted, we established an important point, on which, as a basis, we have advised our readers, in connection with this subject. Moreover, we have proved that, though camellias should *never* go dry, there is no serious harm done them by being occasionally dry *previous* to the formation of the flower-buds, but *after* the buds are formed, dryness at the root is likely to lead to the casting of the bud in the spring following. J. O. probably injured his plants by excess of heat. Yet even this we should think less dangerous than neglect of watering in autumn, for then the flower-buds occupy, so to speak, all the energies of the plants, and slowly as they advance—occupying usually about six months from the time they are formed till the time they open—they nevertheless receive a decided shock, if the plants once get dust-dry at the roots; and this is an accident quite common in private gardens. Market growers depend very much on their camellias for profitable returns, and are very careful to keep them regularly watered, especially when put out in autumn. Trees in large tubs are sometimes assisted by placing on the surface of the soil in the tubs a circle of clay, within which the water is poured, and which prevents it escaping down the sides of the tubs on the outside of the roots. J. O. will possibly do well not to shift the camellias this year; but on this point we cannot speak with any certainty; it is a question depending on eyesight; but it may be well to remark, that if camellias are well potted, they may go several years without a shift. The blood orange is not a cross between the orange and pomegranate; there is no such cross. Any and every kind of orange raised from seed will in time bear fruit without grafting; but the Tangerine and Otabeite are quicker to fruit from seeds of any.

BULBS IN POTS.—*Commelina*.—The winter acuite will do in pots very well, needing only to be potted early in autumn, in any light, good soil, the tubers rather close together, to make a good effect. It does not require heat, and, in fact, heat would injure it. After flowering, the pots should be put out of doors, and the plants kept growing until the foliage begins to wither, then laid upon their sides in a sunny place to ripen them, and be repotted in September. Scillas do not flower well in pots, unless potted singly in small pots. When several bulbs are put into large pots, they flower irregularly, and make much less effect than might otherwise be expected of them. *Bulbocodium vernum* is not a good bulb for pots. The only satisfactory way to treat it is to plant it round the margins of beds, or in clumps in the front of a border, and leave them alone. *Lachenalias* are first-rate pot bulbs. Pot them in mellow, turfy loam, with an admixture of sharp sand, five good bulbs in a five-inch pot. This to be done when they just begin to grow in autumn. Keep them in a pit or greenhouse, safe from frost, and near the glass. A little heat is good for them, but they will do without it, if really safe from frost. The grand secret of success is to give plenty of water from the time they begin to grow freely after the turn of the year. If well grown, the flower-spikes will be strong and brilliantly coloured, and the leaves will be fleshy, and from an inch to an inch and a-half across.

WATERING GREENHOUSE PLANTS.—*G. A. G.*—Generally speaking, greenhouse plants are not hurt by being watered over their leaves while exposed to the rays of the sun, provided air is given at the same time. But it is not a good practice, for on some occasions it will completely kill some plants.

LAYING OUT A GARDEN.—*H. C. P.*—The laying out of gardens cannot be done through the pages of a periodical. The only way to get useful advice upon that subject is to get some competent person to see the garden, and then advise upon it. We really cannot tell you whether you had best cut down the trees or not. Our general advice to persons taking possession of old gardens is, do not destroy anything till you have quite made up your mind what to do. Trees are easily cut down, but it takes years to obtain other trees in their place. Respecting grape growing, you cannot do better than consult the papers that have been lately published in this work.

VINE CULTURE.—*A. B.*—You wish to train a vine up a wall a height of twenty-one feet, and then take it into a greenhouse on the second floor, and wish to know about removing the laterals from the rod, etc. You might perhaps meet with a pot vine consisting of a strong rod of ten feet length, and if such a vine were turned out into a rich border next month, it would very nearly reach the greenhouse before the end of the season. We say a rich border, and by that we mean just one square

yard of prepared soil, consisting of three parts good loam, two parts rotten stable manure, and one part broken bricks, nodules of mortar and bones. Supposing a weak vine to be planted out of a pot next month in such a border, we should advise to allow it to grow in its own way and not remove a single leaf or lateral shoot, and not on any account allow a bunch of fruit. But if it should show a bunch or two there would be no harm in allowing a few berries to ripen to prove if it be true to name. In the spring of 1867 we should cut the vine down to within two or three buds of the base, so as to get in that year a very strong rod from the bottom, and then at the end of that year you would be in just such a position as if you had this year planted a very strong cane. While making a rod to keep, as with the first vine in 1866, and the second in 1867, we should pinch in all laterals at the fourth leaf, so as to have the rod clothed with short spurs. This pinching should be carried on assiduously till the top of the cane was safely lodged in the house; and in the first season of its growing in the house we should begin to remove the twiggy laterals a few at a time, beginning at the bottom, and unless the head took the lead and grew vigorously, allowing two years to remove them all. *THE FLORAL WORLD* will have an index certainly; the past eight volumes have had one each.

FERNERY.—*J. W.*—A fernery may be made and planted at any time; but the best time to put the plants in their places is from March to June.

FLORAL WORLD.—*Clericus hortensis* is thanked for his letter, which of course cannot be discussed here, but will be borne in remembrance.

SPRING FLOWERS.—*New Subscriber* will see that these are receiving attention. At the present time very little can be done either in collecting or cultivating such plants; so we may safely defer till next month the consideration of the subject.

ROSES.—*R. S. W.*—Roses budded last summer, and that made good shoots, should have been pruned in March to three buds.

SEEDLING ORANGE TREES.—*J. O.*—We can only repeat what we said to *E. R. F.*, that the fruiting of seedling orange trees is merely a question of time. You cite a case of a tree twenty years old that has not yet fruited. True, but many fruit at a much earlier age, and the fruits produced by seedling trees are generally good. But if you ask about the desirability of grafting, we have only to say that it is very advisable indeed to use seedlings as stocks, grafting upon them such sorts as are known to be good, for grafted trees soon come into bearing, and there is no risk about the quality of the produce. Your proposal to graft a portion of your three hundred seedlings we fully approve, far better certainly than to wait for them to fruit. The question asked by *E. R. F.* was, would such trees fruit without being grafted? To which we gave a straightforward answer, "Yes;" and this we repeat, they will all fruit in time without grafting.

PRIMROSES EATEN BY BIRDS.—*Pangbourne.*—We can only suggest the use of white worsted attached to short pegs, two or three lengths of which across the ground may frighten the birds while the flowers are in bloom. We never recommend nurserymen.

SPERGULA.—*Miss M.*—*Spergula* is a genus of plants belonging to the order Caryophyllaceæ, or carnation tribe. The species best known are *S. nodosa*, *S. saginoides*, and *S. pilifera*, the two first natives of Britain, the last a native of the Alps, and probably only a variety of *saginoides*. They may all be grown from seed, but to obtain the seed is no easy matter. Messrs. Carter and Co., and several other trade cultivators, supply *spergula* turf ready for planting, but we are not aware that any house supplies seed. The way to deal with *spergula* turf is to cut it up into pieces of the size of walnuts, and plant them four inches apart in ground carefully prepared for the purpose.

WALTONIAN.—*E. M. E.*—We regret to say the manufacture is discontinued, and the original manufacturer is *non est*. We cannot add in any way to the descriptions that have appeared. We explained everything so fully years ago.

VARIOUS.—*T. C.*—We decline to give any estimate of the value of the produce of your orchard. The query respecting "your most valuable work on the profitable cultivation of orchards" we do not understand.—*Rutland.*—The mammoth gourd is edible and excellent. The flowers were powdered to dust, and so cannot name the specimen sent.

THE FLORAL WORLD

AND

GARDEN GUIDE.

JUNE, 1866.

THE INTERNATIONAL EXHIBITION.



THE originators of the exhibition which attracted thousands of persons to Kensington during the ten days from the 22nd to the 31st of May, have every reason to be gratified with the results of the undertaking, and the full appreciation by the public of their intentions and their labours. Though more than three and a half acres of ground had been covered in, it was with some difficulty that room was found for all the plants sent, so liberal were cultivators, and so unanimous their desire to insure for the project a complete success. There has been a tedious paper war waged for two or three years past on the subject of flower-shows; one party urging that a picturesque disposition of subjects should always be aimed at, and another party contending that classification and staging are essential to enable collectors and cultivators to make comparisons of the relative merits of species and varieties. At the great show just concluded something was accomplished for the satisfaction of both these parties, and, indeed, the magnitude of the display rendered it much less difficult to combine classification with picturesque effect than is the case when the managers of a local show have a small tent to deal with. The great sheets of rhododendrons, the glorious groups of palms, tree-ferns, and other plants of giant dimensions, and of various degrees of grace without colour, to relieve the glowing groups of azaleas, pelargoniums, roses, and other showy subjects, made a *garden* of the tent, as was intended from the first, and yet connoisseurs of particular subjects could easily find their favourites, and could make comparisons of the values of the several varieties. We have tried the continental method and have succeeded; honour then to those who conceived the plan and did the work, and thereby placed London on a footing of equality with those continental cities which have made themselves famous by international exhibitions combining the highest artistic finish with the most obvious utility.

What effect this brilliant affair will have on flower-shows generally remains to be seen. It is quite certain that flower-shows

on the stereotyped model were fast wearing out. Strangely too, after the many injurious, ay, ruinous, blunders of the Council of the Horticultural Society, who have contrived to make the Society famous for exhibitions that are mockeries of both science and art, the Council of the Royal Botanic Society, hitherto so spirited and judicious, have ruined the shows for this season at the Regent's Park, by the parsimonious schedule in which they invite competitions. It was by parsimony and contempt combined the Kensington Council drove cultivators from their doors, but at Regent's Park suavity prevails as of old; so long as Mr. Marnock bears rule, no one need fear discourteous treatment, or even the cold politeness of finished red-tapeism. One might suppose the International Exhibition to be the protest of exhibitors against the narrow-mindedness and selfishness of the two principal exhibiting societies in the country; if it be not so, it is well worth observing that *the spirit of exhibiting is not extinct*; horticulture is not languishing; private collections of immense value abound; the trade in plants is not the highway to the workhouse; the public are not yet sated by flower-shows, but have as keen a sense as ever of the beauty of a good display, and are, as ever, liberal in furnishing the means to produce it.

The large number of foreign cultivators who attended the exhibition and the congress furnishes a peculiar reason for belief in the political and social benefits attending such a gathering. Since international competitions came into fashion, peace and prosperity appear to have had broader and safer foundations in Europe; certainly the wealth of this country has been increasing in a more rapid ratio than in old times when "foreigner" was synonymous with "enemy," and envy and jealousy occupied a place in the public mind which is now devoted to generous emulation and honourable rivalry. To meet so many continental cultivators at the exhibition enhanced its pleasures immensely—the greetings exchanged may not tend in any way to avert the war that threatens, but we may rest assured they will not promote war, or indeed promote anything but good feeling and generosity, and ambition unmingled with acerbity. Let honour be given, then, to the originators of the plan, and the zealous workers who carried it into execution. They at least afforded the public a new pleasure, so without indulging in æsthetic speculations, we may heartily thank them for their services both to the general public and to the ranks of practical horticulturists.

ZONALE GERANIUMS FOR THE CONSERVATORY.



Some time has elapsed since I last discoursed on this subject it may not be unseasonable to direct attention to it again, both to report progress and to take note of the prevailing floral fashions. It need not be said that the varieties of zonales are by far too numerous, for every cultivator is aware of that; but it may be said and must be

said that we are still in want of whole batches of new varieties, and of that not many are aware. I have learnt something from my long and careful course of hybridizing this tribe of plants, and perhaps the most prominent of many lessons is this—that it is possible to bring the geranium to such a pitch of perfection that nine-tenths of the varieties in cultivation will very soon be dispensed with. The varieties are too numerous because many of them are bad; and we want more of a certain kind to take the place of the discarded varieties; in short, we want all the shades and colours we have already, but we want them all represented by better flowers.

The majority of cultivators have not yet thought much about the forms of the flowers of zonales. Colour has been much thought of, and colour only. Yet, amongst a certain few, form has had full recognition; and as breeders have succeeded in originating a series of varieties remarkable for perfection of outline and breadth of petal, and in many cases not less remarkable for delicacy and richness of colour, the bedding capabilities of the zonales have become quite second to their importance in the decoration of the conservatory and for late summer exhibitions. It is eminently desirable that amateurs generally should give attention to the more refined forms of geraniums which are now obtainable. They are so easily grown, are so well adapted to decorate the greenhouse and conservatory at a time when flowers are generally scarce, are so exquisitely beautiful in both leaf and flower, and may be treated in an off-hand way, and allowed to form large bushes, or may be trained down to convex outlines and made gigantic exhibition specimens, and in every case need but a moderate amount of skill to insure complete success.

We have nothing now to do with Tom Thumb, Christine, Hibberd's Pet, Reedii, and the rest of the favourites for the decoration of the parterre, except to direct attention to the form of their flowers, in order to point out the great distinction now established between these favourites and the best exhibition kinds. It will be noticed that the flowers of all the old varieties consist of comparatively narrow petals, which are more or less separated, the two top petals being smaller than the three lower ones. The outline of the flower is irregular, and deeply indented where the petals meet. In the exhibition kinds we have, on the contrary, petals of great breadth and substance, the top petals are the same size as the bottom ones, or so nearly the same size that the eye does not readily perceive any difference between them. More remarkable than any other feature is the nearly perfect circle presented by the outline of the whole flower, the almost total obliteration of the indentations on account of the breadth and *overlapping* of the petals. It is perhaps not possible yet to separate geraniums into two classes, one to comprise the narrow petals, and the other the broad petals, but form altogether, including breadth, smoothness, a circular outline and top petals the same size as the lower ones; *form* should be thought of as most important in the selection of varieties for conservatory decoration. The exquisite beauty of the broad-petalled kinds puts them

so far ahead of all the rest, that it is as if a new flower had been created.

It must not be supposed, however, that I would restrict the cultivator to the broad petals in making a selection for the conservatory. There are some with narrow petals, notably certain of the nosegay race, that every lover of geraniums must have; nevertheless, *breadth of petal* is the quality of highest importance, and it is that in which especially the best of the new differ from the best of the old varieties. Take, for example, *Dr. Lindley*, brought out four years ago by Mr. Bull, or *Hector*, *Faust*, *Eleanor*, and *Virgo Marie*, and how grand is the appearance of either when placed side by side with any narrow-petalled kind most like it in colour and leafage. On the other hand, some of the nosegays are so grand in character that no one dare despise them, and so in spite of narrow petals we can take such as *Rose Rendatler*, *Stella*, *Le Grand*, *Amy Hogg*, and others, and rejoice in the profusion of their huge trusses and magnificent colours. Yet, whoever has an eye for form, for the highest of all qualities in cultivated flowers, will find more to admire in *Magna Charta*, *Amelina Grisau*, *Andrew Marvel*, and *White Perfection*, which with a few others come so near to the *beau ideal* of a perfect flower, having broad petals nearly equal in size, and a noble carriage of leaf and bloom, as different to the geraniums of ten, or seven, or even five years ago, as a first-class exhibition rose is different to a wild rose of the hedges.

One reason why the improved forms of geraniums are not so well known as they deserve to be is, that framers of schedules have not yet done them justice. They ought to have a prominent place in all summer and autumn shows; then the better kinds would attract attention, the faults of the old varieties would become conspicuous by contrast, and cultivators would learn to give to breadth of petal its proper value, as the most important of all the qualities required in such a flower.

The object of this paper is to direct the attention of amateur cultivators to a class of subjects eminently adapted for home use, whether to make a grand bank under glass or to adorn the entrance, to form groups on the lawn, and in other ways to render service as pot plants, which are easily kept in winter, and occasion but little trouble to grow them well. This is the best time in the whole year for the purchase of varieties, as, even if very small plants are obtained, they will soon show a few blooms to attest their quality, and they may be grown to a good size before the season is over, and afford a supply of cuttings for stock. In selecting varieties for this purpose, about which we are alone concerned now, individual excellence is of the first importance. It is otherwise in selecting sorts for bedding. Individual characters are then subordinate to the effect of a mass; yet it happens, as in the case of *Stella*, *Cybister*, and *Black Dwarf*, three of the noblest nosegays, that fine individual qualities are compatible with bold effects when the plants are in masses, for the brilliant colours and huge trusses of these varieties are appreciable whether the plants be in beds or pots. Nevertheless, we look for more than mere colours in a pot plant, and we seek for

pleasure in examining it, not in merely glancing at it; in other words, true exhibition kinds please us with their superb *flowers*, but bedders are chiefly valued for their *colours*.

In my own experiments in hybridizing I have sought to create exhibition forms chiefly, though I have kept and named some that will be chiefly useful as bedders. Thus in *Magna Charta*, *Andrew Marvel*, *H. W. Longfellow*, *Evangeline*, and *May Queen*, which are now being sent out by Mr. B. S. Williams, the flowers approach nearer to a true circle than any other varieties in cultivation. I have discovered the secret of enlarging the petals, and of increasing the breadth of all the petals, so that they overlap and form a smooth circular outline. In the bedders we may have a flower more like a star than a disc, but in the best exhibition kinds there is a near approach to the disc, and the five varieties just named will give immense delight to those who understand the difficulty of the task, and who value perfection of form in cultivated flowers. In *Kate Anderson* the form is far less perfect than the standard I keep constantly in mind, and it is offered to the public solely on the ground of its fine dark horseshoe leaf, compact habit, and the intense purity and depth of its scarlet colour. It absolutely glitters, and if placed in the midst of all the best scarlets, can be distinguished in a moment by its vivid glow of colour. For every one such variety I have to grow hundreds; in fact, there are three or four hundred destroyed for every one worth keeping. If other raisers would destroy as ruthlessly as I do, and offer the public only the *crème de la crème* of their seed beds, we should not have to condemn, as we are compelled to do, the numerous worthless kinds that crowd the catalogues, the majority good in colour only—colour, which is the easiest of all qualities to secure in this class of plants, whereas form is at once the most difficult and the most valuable.

I now subjoin lists of varieties adapted for every class of cultivators; they may be added to easily enough. My object is not to name many, but few, and those few the most beautiful in the several classes.

A SMALL COLLECTION OF CHEAP VARIETIES.

(Those marked with an asterisk are good bedders.)

Six scarlet and crimson.—Adonis, fine form, pure white eye. Attraction,* brilliant scarlet. Faust, large trusses, rich scarlet. Dr. Lindley, superb form, trusses not large; not at all fit for bedding, as it is apt to grow too strong, and then does not flower freely. Lord of the Isles, very large flower, light scarlet. Monsieur Gallaud, rich scarlet; flower rather cupped, but finely formed, and the truss a perfect hemisphere.

Four red and red shades.—Rubens,* an old favourite; when well grown, the form is excellent. Herald of Spring,* blooms abundantly, and fine in flower and truss. Triomphe de Gergoviat, the best of the double-flowering kinds; colour crimson and red. Excellent,* rather robust in growth, fine light red.

Four white.—White Perfection,* quite surpasses Madame Vaucher. Virgo Marie, pure white, a refined flower. Madame

Werle, white ground, the petals delicately margined with pale rose. *Galanthiflora*,* dwarf grower, fine snow-white flowers abundantly produced.

Four rose-pink.—*Beauté du Suresne*, broad petals, rich colour, the top petals white at the base. *Rose Rendatler*, rose pink shaded lilac, a nosegay with peculiar long petals and huge showy trusses. *Lady Colum*,* a small-growing nosegay, the colour lilac pink, peculiar and beautiful; this has no claim to notice in respect of form, but we have no large-flowered kind of the same delicious colour. *Mrs. William Paul*, flowers large and the form fine, petals rather flimsy, colour pale rose pink.

Four salmon.—*St. Fiacre*, good form and rich deep salmon red colour, most beautiful. *Eugenie Mezard** (also known as *Madame Rudersdorf*), when in the full sun in a bed, is a beautiful salmon colour, but when grown in a pot, and shaded from intense sunshine, the flowers are white with salmon centre, delicate and beautiful, quite like a wax flower. *Amelina Grisau*, white with salmon centre, superb. *Madame Chardine*, shaded salmon and white. *Rosamond*, salmon flesh, very pleasing.

Various.—*Glowworm*,* a showy nosegay; top orange scarlet; lower petals rich crimson. *Black Dwarf*,* a first-rate bedder, and well worth growing in pots for its compact habit and huge trusses of rich crimson. *Leonie Nivelet*, beautiful blush. *Lady Middleton*, a fine old variety, rose red.

Six variegated.—*Mrs. Pollock*, well known for its superb leaf and fine scarlet flowers; when grown as a pot plant, cool treatment suits it best; stove heat, to which it is often subjected, spoils it. *Flower of Spring*, very white margin and fine flowers. *Queen of Queens*, very white margin and fine scarlet flowers. *The Countess*, small growth, neat creamy-edged leaves, flowers rosy scarlet, finely formed. *United Italy*, a fine tricolour with small leaves, white margins, and lively rosy zones. *Gold Pheasant*, fine golden variegation.

A SELECTION FROM THE NEWEST VARIETIES.

Sir Robert Peel.—Has immense flowers, pure scarlet.

Le Grand.—A grand nosegay, producing trusses of great size, which last in perfection several weeks; colour carmine scarlet, shading to crimson.

Andrew Marvel.—Vermilion red; the form remarkably perfect; all the petals the same size, and overlapping.

Evangeline.—White shaded blush, a most delicate flower. When carefully shaded, a lovely tint of rosy violet appears at the inner edges of the petals, the other parts being ivory white.

H. W. Longfellow.—Flower of medium size, and the richest shade of salmon yet produced, quite fiery.

Magna Charta.—The finest formed geranium out; colour deep, dull, heavy red, an agreeable change from the prevailing scarlet.

Kate Anderson.—Small growth; leaf finely marked with black zone; flowers not first-rate in form, but good, and the colour intensely brilliant; will be invaluable for beds.

Gladiateur.—Rosy salmon, a fine flower.

May Queen.—In the way of *Beauté du Suresne*, but better top petals.

Speaker.—Fine scarlet and rose; beautiful form.

Wiltshire Lass.—A true bedder of the *Christine* section, which it far surpasses. It makes a lovely pot plant.

Beauty of Oulton.—Large leaves, finely marked with dark amber zone; flowers cerise.

Bronze Shield.—The best of the cinnamon zoned section.

The twelve named in the list of newest varieties will cost from 5s. to 7s. 6d. each. Probably the twelve could be obtained for a trifle under £4. Those in the first list may be had at an average of one to two shillings each.

SHIRLEY HIBBERD.

ON FORMING A SUMMER ROSERY.

BY W. D. PRIOR, ESQ., WOUGHTON HOUSE, CLAPTON.



THIS present spring has not been without its wonted concomitants of bitter winds and early frosts, evils inimical to nothing in the shape of vegetation more than to the tender growth of fresh-pruned rose-trees. These adverse conditions of our climate are so pregnant with disappointment to the hopes of rosarians that I am by no means certain whether it is not the safest way to form a rosary by means of plants out of pots early in June, especially in bleak and exposed positions. To effect this is not a very difficult task now the large rose nurseries keep such a stock of strong plants for the purpose, many of them potting up *Manettis* and short briars from the nursery quarters during the winter, either for early forcing or to plant out in the spring. These are precisely the same class of plants as are sent out from the open ground, but have the advantage of some sort of protection during severe weather, so that their first growth is not destroyed like that of the ordinary bushes; they can, moreover, be transferred with safety at any time to desired positions, when lifting would be certain death to plants removed from the ground. The chief things required will be a proper attention to the preparation of the beds, and a judicious selection of the varieties to be used.

Although every information in reference to these matters can be obtained from the pages of this and kindred miscellanies, or from Mr. Hibberd's admirable "*Rose Book*," it may not be without utility at this present season to recapitulate a few simple but sufficient directions to form an efficient rosery upon this plan, because there are so many apathetic minds that will not take the trouble to seek for information unless thrust before their very eyes. It will of course be understood that these remarks are not for adepts, but merely for those aspirants after the reputation of rosarians among

their lady friends (and what a desirable reputation that is only the initiated can tell) who are yet neophytes in the fascinating art of growing the most enchanting flower that adorns our gardens and parterres. Let such consider that there is a sort of subtle and unspoken flattery in the mere act of presenting a lady with a rose which attends no other offering, and which affords, moreover, opportunities for delicate compliments or well-turned speeches as appropriate as ingenious, to say nothing of certain looks and glances and other time-honoured modes of ingratiation with the fair recipients. I recollect an axiom of a certain venerable female of the "Sairey Gamp" sisterhood in my younger days, who was accustomed to affirm to her patients "That a look of love and veneration was of more wally than ten physicians." How much more effectual, then, would such looks prove if accompanied by the presentation of a beautiful rose! But I must restrain my too errant pen. *Verbum sap!* Young men who peruse the FLORAL WORLD incontinently become rosarians, and realize the beatific fruits. The beds into which roses are transplanted from pots need not, for the first season, be more than eighteen inches deep, and the soil should be rather rich and free than too stiff. There should be a staple of soft, fat loam, which should be well intermixed with succulent manure of any kind and lumps of half-rotted turf; charcoal, charred wood, and clean bones will be a valuable addition. When the plants are turned out of the pots all suckers should be extirpated, the drainage just removed, but otherwise the ball should be disturbed as little as possible, although when the earth has been pressed well to it, a slight pressure near the collar, just to insure the water passing through the fibres, will not be amiss. After a good soaking, the ground round newly-planted roses should be deeply mulched with only half-decayed manure, over which a layer of fine mould ought to be sprinkled, to take off any unsightly appearance among dressed borders, and the plants should be further strengthened now and then by refreshing draughts of liquid manure. These operations, with cleanliness and the watchful eye of an enthusiastic insecticide brought to bear daily upon the welfare of his favourites, will insure a fine bloom; somewhat later, perhaps than in November-planted rosaries, but in not the less perfection. *Small* plants, however, especially those sent out in 60's on their own roots, are not for the purpose; they are mostly too weak, and require more nursing into robustness of constitution than the cultivators for whom this paper is intended are able to bestow.

I shall next consider a selection of varieties, limited it may be, but unsurpassed in their styles, and in their several adaptabilities for the generality of soils and localities, and also remarkable for their strong and healthy growth. Beginning with the darkest, they may be taken in the following order;—Vicomte Vigier, Prince Camille de Rohan, Charles Lefebvre, Madame Victor Verdier, Senateur Vaisse, Le Rhone, General Jacqueminot, Jules Margottin, Victor Verdier, Madame Clemence Joigneaux, C. Guillot, John Hopper, Madame Domage, Baron Gouella, Centifolia Rosea, Duchesse de Morny, Baronne Prevost, Chabriland, Mrs. Rivers, Therese Appert, Louise Darzins. Teas, Gloire de Dijon and Devo-

niensis; Bourbon, Malmaison; China, Mrs. Bosanquet. Additions may be made to this list by those whose natural advantages will allow them wider choice with prospect of return, but they had better be had in any number of repeats rather than spare space be filled with varieties of a doubtful or inferior character.

Having recently had to remove a rosery, I have become impressed with a fact of great importance to the cultivating of that flower, which is the necessity of annual or biennial lifting. I have lost I fear several favourites of large size which had remained undisturbed in the same place for some five or six years, and whose roots had penetrated so far that in removal they obstinately refused to come forth from their haunts in the bowels of the earth. They have been cut back to a couple of inches, but still show no signs of vitality. Nevertheless, I still hope that the reviving influence of the virgin soil and the summer sun may preserve them from utter extinction. For the future Mr. Rivers's canon of frequent removal will form part of my regimen in the treatment of roses, and I commend the practice to the consideration of all rosarians, even to the dwellers upon their paternal acres who are not likely to migrate to other climes. The moral is this—the rose, like other beauties, must be liberally fed and bountifully treated to keep up its buxom development, and this cannot be done upon exhausted and un replenished soil.

PROPAGATION AND CULTURE OF ERICAS.

BY W. H. HOWLETT, OF WHITWELL.



THIS highly interesting tribe of plants popularly known to us as Cape Heaths, and of which we now possess several hundred varieties, are so interestingly diverse in their habit, their form, and their colours, that, doubtless, it is only the fancied difficulty attending their culture that prevents amateurs engaging in it more frequently than they do. But as I do not consider the growing a creditable specimen of erica involves more skill than the growing a creditable specimen of pelargonium, there is no reason for timidity in the matter. That they require very different treatment to the latter is not denied; but that the principles which it is necessary to observe are as easily mastered and acted upon is certain—and, if not now, will eventually be admitted, as their culture becomes more extended. To assist, then, the amateur to overcome any difficulties he may have experienced, or expects to experience, in the culture of this lovely tribe is the object of this article.

Soil.—The heath is a native of the Cape of Good Hope, where it clothes the sides and tops of mountains, and springs out of the crevices of rocks, growing in very sandy soil, such as, in this country, we call peat, and is found on our dry heaths, where our native ling grows. One of the first things, then, for the intending heath-grower to do is to select a stock of soil, and having looked out a spot where

it is black and unctuous-looking, with a good sprinkling of clear, bright sand sparkling in it, he may proceed to clear off the rough herbage that grows upon it—for the best is generally found where the ling grows strongest; then to pare off the surface only a few inches thick, and avoid the poor, grey, hungry soil that lies beneath. The supply should be renewed every year or two, for if kept too long it loses its fibrous texture, and is then only fit for very small stock from the seed-pan or cutting-pot. For larger plants, soil somewhat fresh and lumpy is best. Some peat is wanting in a due proportion of clear white sand. This may be corrected by the addition of silver sand, and this should be done upon the potting-bench, as some of the free-growing, soft varieties, such as *Bowieana*, *cruenta*, *exsurgens*, *flammea*, *refulgens*, *Willmoriana*, *intermedia*, *metulæflora*, *verticillata*, *Bergiana*, *cupressina*, *gracilis*, *grandinosa*, *hyemalis*, *Linneana*, *pyramidalis*, *sulphurea*, etc., being the hardiest and most suitable for beginners, will flourish best in a peat not very sandy; whilst the very hard-wooded, or delicate-growing varieties, such as *Hartnelli*, *ampullacea*, *aristata*, *elegans*, *Massoni*, *Templeana*, *tricolor*, *vestita*, *Sprengelii*, *gemmifera*, etc., though very beautiful, are more difficult to cultivate, and require a larger proportion of silver sand in the soil. It may be necessary to caution the inexperienced against falling into an error I have known amateurs to commit—viz., the mistaking bog soil, met with in swamps and by river-sides, for the peat soil above described; for no composition, however carefully prepared, can enter into competition with pure native peat soil for heath-growing houses. As the heaths delight in a cool, airy house, they must not be associated with such soft-wooded plants as *pelargoniums*, *cinerarias*, etc., but must either have a house to themselves, or have for their associates other hard-wooded plants, which will bear the treatment the heath requires. In the latter case, a low span-roof house, with side-lights to open, or with ventilators instead, and with slate benches or beds of gravel, upon which the plants stand cool, and are not so subject to alterations of temperature and moisture as they are upon spline stages, and in “pitched” or “lean-to” houses, is the kind of place in which the heath delights. Some cultivators cultivate them very successfully in houses with a northern aspect; and in such houses the hardier kind of ferns may be cultivated with them, and will form a very pleasant accompaniment; but let the house be of what kind it may, above all things it is important that thorough ventilation should be provided; for, when the weather is neither frosty nor foggy, established plants can scarcely have too much air. The heating apparatus need not be powerful, its only use being to keep the temperature just above freezing point, and occasionally, in wet weather, to dry up damps, at which same time the top ventilators should be sufficiently open for the moisture to escape; but where young stock are to be reared, a common garden frame, or a low pit, are necessary, or at least desirable, as in such places young plants may be made to grow more freely. Indeed, in such places alone thousands of nice little specimens, loaded with flowers, are annually produced for the London market.

Propagation.—For the benefit of those who are curious in this

matter, we treat of the heath under this head, but advise those who wish to make the best of their time to purchase their stock, as the propagation of the heath is a somewhat slow process, and consumes much time. There are those, however, whose principal gratification lies in the accomplishment of the most intricate and patience-testing part of the craft, and to such untiring enthusiasts we owe our thanks for very many of the beautiful hybrid varieties we possess. Raising from seed is interesting on account of the varieties it produces, and if two varieties are properly crossed by impregnation, something differing from the parents will be obtained. In order effectually to accomplish this, some experience by practice must be attained, as the anthers must be extracted, by means of tweezers, from the flower that is to bear the seed, whilst the stigma must be guarded from injury, and have the pollen from some other variety applied to it. When the seeds are ripe and thoroughly dry, they may be sown at once in pots of finely-sifted peat, pressed tightly into the pot, and well watered before sowing, afterwards covered with a bell-glass; they may then be placed in any cool house or pit, where they can be kept in an equable state of moisture. To this end, place them in a shady corner until they vegetate, when they must be placed quite close up to the glass, until they are large enough to handle; they must then be potted singly in very small pots, known as thumbs. There is some nicety required in handling these, and indeed all the heath tribe, for their extremely delicate roots will neither allow of exposure to the atmosphere, nor bear other rough treatment; consequently, all things must be in readiness to do the work quickly. Whilst plants are small, be they seedlings or cuttings, they must not be overpotted, or the mass of soil will become sour before their roots reach the pots; therefore the smallest pots and finest peat soil, with a larger proportion of silver sand in it than for larger plants, must be in readiness. When potted, the pots being so small, would, if not protected from the action of the air upon their surface, soon get injuriously dry; have then a shelf, or tray with edges, standing up so as to hold sufficient clean sand to plunge them up to the rim. The above directions apply as well to young plants from cuttings as from seed.

Striking Cuttings.—Before preparing the cuttings, have in readiness the pots. The best for the purpose are those with a rim to receive the bell-glass, and made by Mr. Pascall, of the West Kent Potteries, Chislehurst; they are figured in No 7 of the FLORAL WORLD. Having prepared the drainage, which should fill one-third of the depth of the pot, the coarser crocks being placed at the bottom, and the finer upwards, and carefully packed so as to keep the soil from entering amongst them, fill to within a quarter of an inch of the top with fine sandy peat, very tightly pressed in, and the remaining quarter of an inch with silver sand. The pots, when so filled, may be placed in a pan of water until thoroughly wetted through, then gently lifted out to drain for a few minutes whilst the cuttings are being prepared; they will thus be watered without disarrangement of the soil. Take the cuttings when the wood is a little more than half ripe, or when they begin to turn brown; and as this will take place in different varieties at different seasons,

according to their period of growth, so must the cuttings be put in at different seasons; but as the heath is seldom quite dormant, suitable cuttings may be got from the greater part of them during the months from June to September, which time is best, as they then form a callosity before winter, and will start into growth the following spring. When preparing the cuttings, the greatest care is required in taking off the leaves from the part of the cutting which goes in the soil not to injure the bark, also in preparing the base of the cutting with a clean cut, and this may be most effectually done across the thumb-nail, as in nibbling a pen. From one to two inches is sufficient length for the cuttings, and they need not be inserted more than half an inch in the soil; prick them in with a fine pricker, and carefully close the sand against each. When the pot is filled with them, dip it again in water, so that it just run over the rim without wetting the foliage of the cuttings, and cover with a bell-glass, which must be taken off occasionally to be wiped, and should damping take place amongst them take care to dry them. When starting an inch or two into growth, they must be turned out of the pot, and carefully separated and potted. The after treatment is given above.

In choosing young stock from the nursery, do not aim at size so much as healthy plants in vigorous growth, short in the leg, well furnished with branches, and by no means pot-bound. Be not lured by plants in flower, as flower is often the result of cramped roots; and once the heath gets cramped and pot-bound, it is difficult to make a fine specimen of it. If received in spring or summer, and they seem to require a shift, which may be known by carefully turning them out of the pot upon the hand, to see if the roots form a network over the ball; if so, they will take a shift into pots a size or two larger. Make ready pots of the size required, and if new, soak in water before using, otherwise they will exhaust the soil of its moisture; also provide crocks of different sizes, and peat earth, not too finely broken, amongst which, if it is thought to require it, sift a little silver sand, some lumps of charcoal as big as filberts, to throw into the pot a few at a time as the potting goes on; these act as sweeteners of the soil, and help the circulation of water through the mass. A good drainage is of the first importance. Having secured this, press into the pot a little lumpy peat to set the ball on, and so regulate it that the top of the old ball may come within about half an inch of the top of the pot. Fill in round the sides of the ball with the new soil, and ram it tightly in with a blunt stick, so that the water, when given on the surface, may not run away through the new soil without wetting the ball. At this stage the form of the plant should be attended to, the branches pegged out, and taught to take such a direction as will ultimately form a symmetrical specimen, without the aid of so many stakes as are generally used. They may then be placed in a frame or pit, upon a hard bottom, where no worms can get into the pots; for if this happens they will fill up the drainage, and cause much trouble, if not injury to the plants. In such a place, during the summer months, their growth will be rapid, as their roots stand cool; and although plenty

of air must be given, and warm showers allowed to fall upon them, yet a diminution of air may take place at three or four o'clock, p.m., so as to shut up for a few hours during the evening a large amount of solar heat, when more air may again be given. In autumn they must be removed to the house, and if young stock are received from the nursery in autumn, they must have all faded blossoms picked off, and be placed in the heath-house until the following spring, when they may be treated as already described. As soon as blossoms fade they should always be cleared off the plants; from slow growing kinds they should be picked off, but the free-growing kinds may be cut off, taking with them the points of the shoots. This will keep the plants compact, and, as they attain to the size of specimens, potting will be required less frequently, as they will stand and flower for years in the same pot, with a little fresh surface dressing occasionally; but when potting is necessary, it may be done when the pruning takes place, and if the plants can be put in a pit for a few weeks, and treated to a little solar warmth, it will assist the new growth. A puff of sulphur must occasionally be given amongst them to keep off mildew, and the greatest care taken that the roots are at all times kept in a healthy state of moisture, and this by the use of soft water alone; no hard pump water or liquid-manure must be given to the heath. Some cultivators know by the weight of the pot if the soil be in a proper state of moisture; others use, perhaps, a better method, and one which may be soon acquired, viz., that of tapping the pot with the knuckles, and listening to the sound. Any one can easily learn this, by taking two pots, one of which is known to be wet, the other dry, and practising upon them, observing at the same time the difference of sound. A shade of tiffany thrown over the heath-house or pit in bright weather, will tend to preserve the foliage green and to promote their growth, but heavy shading should be avoided. In turning out into the open air in summer, turn out only the hardiest varieties for about six weeks during July and August, and house again before the heavy rains set in, otherwise they may saturate the soil, and injure the roots. Also be careful to place them upon racks or concrete, so that no worms enter the pots; and choose a place for them shaded from the meridian sun, but exposed to its morning and evening rays.

CELERY FLY, AND THE SCOTCH SYSTEM OF CELERY CULTURE.

BY MR. JAMES CUTHILL, OF CAMBERWELL.



NO doubt it is much to the gardener's interest if he could know the habits of the celery insect, as well as all others that attack his crops; but unfortunately he has not the means to do so. Entomologists tell a long story of the celery insect and others, and the book comes to money. However, the celery insect lays dormant in the

ground all the winter, and comes to active life in July or August. After a time it lays eggs in the celery leaf. In September, and early in October, the young grub eats and grows, and in a short time gets to its full size; it then drops from the plant into the soil, there to remain in a dormant state till next summer. Gardeners from this will know the exact time when to expect them, so that they may be provided with plenty of dry soot to scatter over their plants of a dewy morning, so that it may adhere to the under side of the leaf as well as the upper side. They must bear in mind that soot is not so easily washed off by rain; if it should be, put more on. What I wish to see is, gardeners in small suburban places sow their celery early in February. By so doing, the plants would be very stout and fine long before the insect made its appearance; and in case of neglect in looking after the insect the plants would stand a better chance. However, I have now done my best, and can only add, that if this insect is not looked sharply after, celery will make but a poor show on the tables of the merchant of London. I am aware of the difficulty of having ground cleared for early celery; but to grow a large number of celery on a small piece of ground, I have, in the large families I have lived in, always grown my celery on the Scotch system—that is, a bed dug one spit or more out, and banked up on either side, five feet broad; then six inches of rich manure spread on the bed, trodden hard, and dug in. Plant the rows cross-ways, six or eight in a row; then, for the next row, one foot or fifteen inches from the last, and so on. The celery does not grow so large as single rows, but this plan has every other advantage—economy of ground, watering, moulding with a board on each side of the row, winter covering, digging up in severe frost, etc. To prove the great advantage of the large bed system, in 1837-8 I had celery at Dyrham Park when everybody else's was destroyed. Again, previous to that I had a family of seventy people to feed at Lord Canterbury's, at Mistly Hall, where I grew 10,000 heads, for all purposes. I look upon a large head of celery as I do long blanched asparagus, long cucumbers, and the like—they go to the pigs.

DISEASE OF THE VINE AND ITS REMEDY.

BY P. LAZARIS, OF ATHENS.



ANY substance, dried and pulverized, which does not injure the foliage or fruit of the vine, cures the disease of "oïdium," with which it is affected. It is because of the same qualities that pulverized sulphur produces the same effect, and not as a specific, as is generally believed. Those who have thus far applied themselves to research, to discover a remedy for the disease called "oïdium," have wished to find a specific, which would as surely cause it to disappear as does quinine break the intermittent fever. Consequently they have considered

that sulphur possessed such specific properties, but no one discovered that any material reduced to very fine powder, and which would not injure the plant or its fruit, would equally well cure the disease. When it is spread abundantly on the grape, where it attaches itself easily, it acts, as I believe, by its drying the parasitic fungus, absorbing its juices, and thus cutting off its nourishment. In some microscopic observations I have made, I think I have seen this effect produced just at the point where the peduncle of the parasitic grains is attached to the grape, and possibly, on the grains themselves. Having observed that those grapes which lay upon the earth were not attacked by the disease, I concluded very naturally that the most efficacious means to cure it was by powdering the plant with earth.

The following experiments led me to consider my discovery as an infallible remedy. I powdered my vines with European sulphur, save one corner of my vineyard apart from the rest, which was saved for experiment. This was divided into two portions; one was treated with sulphurous earth of Kalamaki, called "antirusty" (antigaleuse), the other simply with clay, leaving, at the same time, a few vines in their natural state, to see if the disease might not cease spontaneously. In due time, the three portions treated with European sulphur, earth of Kalamaki, and with clay, alike showed the cure desired, while the vines not treated at all were entirely destroyed by the disease. Therefore, I concluded that pulverized earth merited equal confidence with sulphur. As some persons suppose that sulphur exercises an influence at some considerable distance, I repeated the experiment the following year in a part of my vineyard distant from where sulphur was used, and not forgetting to leave some vines without any treatment. Three months later, the vines not powdered were destroyed, while those treated with argillaceous earth were saved, convincing me fully that such argillaceous earth radically cured the disease. Yet I resolved to continue the experiments during 1858, and test the following matters:—

1st. If, in order to save expense and labour, two powderings would not suffice instead of three?

2nd. What is the best time to make the applications?

3rd. If, having omitted the first application, it would be possible to effect it by a later application?

In order to settle these three questions, I performed the following experiments: I powdered a number of vines before flowering, and twice later, at the times when sulphur is usually applied. The cure was complete. Fifteen days after I commenced the preceding experiments, I commenced another series in the same way. Nine days had not passed before signs of the disease appeared, when I immediately repeated the application of pulverized earth, and had the satisfaction to see the disease arrested. I repeated the experiment the third and fourth time with the same results. Another series was powdered at the time of the setting or formation of the young grapes, but without success, although the earth was used abundantly. A fourth lot was left untouched in the midst of the rest, which was like the last attacked.

From these experiments I have drawn the following conclusions: 1st. The earth should be freed from sand and gravel, dried in the sun a few hours, pulverized very finely, and then sifted or bolted like sulphur. 2nd. That as common clay is easily prepared as above, and adheres well to the vines, it is preferable to other kinds of soil. 3rd. That the instruments generally used to apply the sulphur will serve for this also, at least for the first and second operation, but the third time, as the grapes have then some size, it is desirable to have them more abundantly powdered, yet it is possible here to use the same instrument used for sulphur. 4th. The powdering succeeds best when applied after sunrise, but while the grapes are still somewhat moist with dew. The following times are the best for the application: *a.* When the young shoots have scarcely attained the length of a span, before the grape is in flower. *b.* As soon as the flower has fallen and the young grape entirely set. *c.* When these are of the same size as is thought sufficient in sulphuration. 5th. Independently of these, even when performed with care, it is necessary sometimes to make extra applications, as, for example, each time after a heavy rain, after waiting a day. 6th. The removal of a part of the leaves, as is usual, is advisable, if practised with moderation, otherwise the vines, deprived of leaves, the grapes may be scorched by the heat of the sun. 7th. If from any cause the first regular powdering has been omitted or neglected, it will be necessary to supply it by two others, with an interval between of eight or ten days. But it is indispensably necessary that it be done before the time of the second regular application. 8th. It is necessary always to perform the operation with the greatest care. It is well to have the workman followed by another, who again carefully examines the vines, and powders any that may have escaped. If after this, disease re-appears, it is proof that the operation has not been well done, and it is necessary to immediately repeat it with all the care that is bestowed when sulphur is used.

[Mr. Lazaris is the proprietor of one of the best managed vineyards in Corinth, and one of the highest authorities on the management of grape-vines.—ED.]

BEDDERS FOR NEXT SEASON.

AMATEURS who value first-class bedders should now begin to propagate all the good things intended to be used next year. Amongst the new verbenas, the velvet cushion series and Lady Binning are invaluable. Amongst geraniums, Paul's Rebecca, Ilbberd's Kate Anderson, and G. Smith's Le Grand are the three most valuable of this season. There are some useful small-flowered petunias, offered by B. S. Williams and Messrs. Henderson and Co., that will be valued by lovers of such things. It is, no doubt, well known to the readers of the FLORAL WORLD that *small* flowered are preferable to large flowered petunias for bedding purposes. There can be no harm in now or shortly striking cuttings of *Artemisia argentea*, *Cineraria maritima*, *Centaurea candidissima*, and any other hardy or nearly hardy edging plants. In fact, anything may be struck from cuttings now without heat, and the plants will be strong for planting out next spring. At all events, all who desire a good stock of geraniums for next year should begin propagating now. S. H.

FURTHER NOTES ON SWEETLY-SMELLING FLOWERS.



HAVING read a very interesting paper by Mr. Robinson on this subject, I thought I might interest your readers by offering a few notes on some favourites of my own. Every one knows of a few favourite flowers that are very sweet-scented, and that are grown as much for their odour as their beauty. Tastes differ, and you will observe that some persons never apply their noses to a flower or leaf of any kind, and I confess I am of the number. Though enjoying the odour of flowers with a real zest, I have such a passion for colour, that, unless the fragrance of a flower is sufficiently powerful to arrest my attention, it is rarely I think to ascertain if it is odorous or not. On the other hand, many persons put the olfactory nerves in action at first sight of a flower, and will forgive any and every fault as to form and colour if it be but sweet-scented. There are, indeed, very few flowers but emit an agreeable odour, though it may be faint. We can detect a flowery freshness in the air of our orchard-house now early of a morning from the blooms of pears and peaches, and we can see in the centre of the pear blooms thick drops of honey glittering like amber for the attraction of the bees. Everybody knows the fragrance of mignonette, heliotrope, *Aloysia citriodora* (commonly called scented verberna), sweet pea, lilac, hawthorn, lime, lavender, sweetbriar, southernwood, violets, hyacinths, honeysuckle, white jasmine, clematis, cytisus, musk, meadowsweet, cloves, stocks, wallflowers, and (to pass by a thousand others) the queen of flowers—most beautiful of all in colour, form, foliage, and fragrance—the rose. But there are a few exquisitely scented plants which very few know of, and at this time of year it is as well to call attention to them for the purpose of adding to the garden pleasures of those who literally “follow their nose” in making selections of plants for culture.

One of our favourite shrubs, which we grow in a wet peat bed, is *Myrica gale*, the sweet gale (or box myrtle), a native of Britain, and quite hardy. This is more deliciously scented than any myrtle, and the best of all vegetable products to place in drawers with clothing, to render them delightfully perfumed. When nearing this plant during a garden ramble, the nose is informed of its proximity to a source of a most refreshing and agreeable spicy odour, and a twig of the plant broken off at any time, winter or summer, will retain its fragrance for months, if kept enclosed in a book or between folds of linen. Hung up anywhere in a room, it will diffuse its sweet odour for weeks together in the atmosphere; and, as the plants grow freely, it only needs to be cut at judiciously, and it will supply twigs all the year round for any purpose for which its fragrance may be required. This plant is plentiful on the dreary wastes of Dartmoor, where the red pebbly heath soil seems to suit it admirably. It will grow anywhere with hardy heaths and rhododendrons, and when bearing catkins is an interesting though not a beautiful object. When the sweet gale is boiled, a wax rises to the surface of the water, which,

if collected and made into candles, emits the same spicy fragrance while burning.

Another quite hardy plant rarely seen in English gardens, and the most deliciously scented of all herbaceous plants, is *Thymus Corsicus*, the Corsican thyme. This forms a close spreading tuft like a miniature decumbent chickweed, and before it comes into bloom is attractive only for its close felt-like appearance, having somewhat the aspect of a tuft of moss or spergula. But it always emits some amount of thymy odour, which is more powerful than any other thyme when the leaves are rubbed or bruised by the hand. During June, July, and August, it is covered with myriads of little purple flowers not much larger than the head of a pin; and then for its fragrance, it is of the highest value. Ladies who amuse themselves in the garden should obtain this thyme and keep it; we have grown it for many years on a very simple plan. The tufts are grown in five-inch pots; when the season is at an end, the pots are placed in a cold frame, and simply left alone till spring. By that time all the plants have died, but the surface of the mould is covered with seedlings, self-sown in the pots the previous season. These are carefully lifted out in clumps of two or three together, and planted in the centres of pots filled with fresh soil, consisting of sweepings of the peat bin, with leaf-mould, rotten dung, and sand; any light, rich, sandy mixture will do. One plant placed in the centre will soon cover a five-inch pot, as the branches run along and root as they go; these will sow their own seeds as before, and the species need never be lost. This Corsican thyme is a suitable plant for the chinks in front of a rockery, and a very good companion for it is the variegated form of the common thyme, *Thymus vulgaris variegata*. This is a sweet pretty shrub, with yellowish-grey leaves, the points of which are tinged of a lively red during its first growth in spring. When in bloom it has no beauty, but is powerfully fragrant. There is a variegated variety of our English wild thyme, *Thymus serpyllum variegata*, which has all the mountain aroma of the species. All the varieties and species of *Thymus* thrive in English gardens, on sandy banks, but in damp or shady situations they do not live long, or at least rarely survive the winter.

In Covent Garden Market, immense numbers of (so-called) orange blossoms are sold during winter and spring; of course the purchasers are mostly concerned in the purchases of wedding cakes and white gloves, but the orange blossoms are the first requisites when bride, bridegroom, the ring, and the parson are in readiness. Now it is very rarely that real orange blossoms are sold at all; the flowers so called are the produce of a lovely evergreen called *Gardenia citriodora*, which is grown in a moist stove, and with good treatment blooms most profusely; in fact, little plants a few inches high will produce a dozen blossoms at a time. This may be grown as well in a warm greenhouse, but it will not there bloom in the depth of winter. *Gardenia radicans* is much better for a cool house, and never fails to reward the careful cultivator with an abundance of its fragrant white blossoms. The way to manage them is to prune directly after flowering, and grow them rapidly in

a moist heat; nothing better than the heat of fermenting material, the moisture from which they quite relish. Harden them off in autumn; keep them rather dry during winter; and start them into bloom in a moist heat in spring. Without warmth and moisture, Gardenias rarely bloom as they ought, but become infested with black-fly, and are then more plague than profit.

Rhynchospermum jasminoides is a valuable greenhouse climber with fragrant flowers. It belongs to the natural order of Dogbanes. When planted out in peat and loam, and carried up the back wall of a greenhouse, it forms a neat climber, and when in bloom it perfumes the house most delightfully. No conservatory, used as a promenade, should be without it. As it rarely grows more than four or five feet high, it should only be used on a low trellis, and does better planted out than in a pot.

We shall offer a few more notes on this subject hereafter, and for the information of many who love old-fashioned border plants, we will add here that Solomon's seal, generally regarded as odourless, emits a delightful honey-like fragrance when cut and placed in a vase in the sitting-room. As this is one of the commonest of plants, and one of the most elegant, many may enjoy a breath of spring who are so bad off as to be without stocks and wallflowers.

Brixton.

W. B. B.

NOTES ON BEDDERS.

BEDDING FUCHSIAS.—The newer and more delicate varieties do not thrive in the hot sun, but succeed admirably in arbours in plunged pots. The older and tougher kinds, and a few of the new ones, bear the hottest sun, and bloom wonderfully. None surpass Meteor, whose rich golden and crimson hues are born of tropical heat. The more sun the better. A bed of Coccinea and Meteor cannot fail to delight the most refined taste.

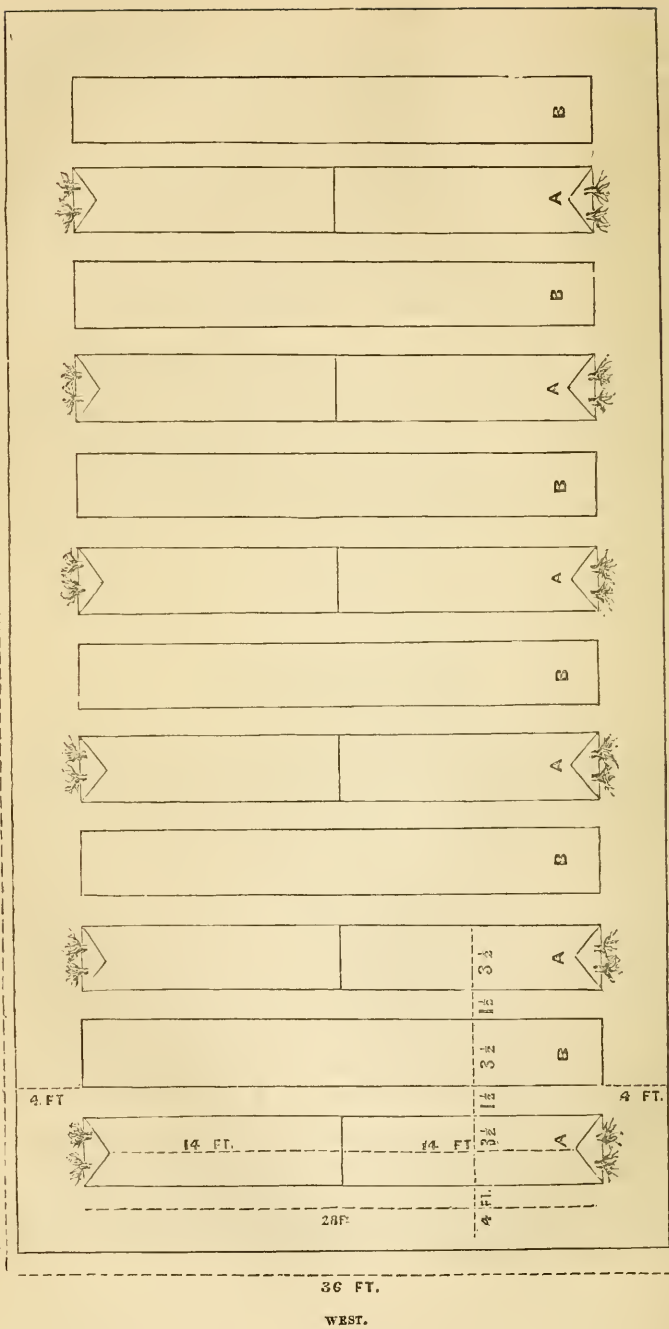
HERBACEOUS PHLOXES.—These are incontestably the flowers for the million: they need but little care or toil, are of most exquisite shades of colour, showy, delicate, profuse flowering, hardy, easily propagated, subject to no insect, and very few varieties to any ailment; they are, in short, absolutely invaluable. A few hints on their culture may, therefore, be serviceable. The soil in which they grow should not be too light or sandy, for the colours under such circumstances are less distinct and bright. Plant in heavy rich loam, mulch with manure in the fall, and work this under in spring. Too high manuring makes the colours run, yet phloxes will bear a very generous supply. If the weather is very dry, keep the soil mulched all summer. To keep up a supply of bloom, move the old plants to a new bed in the spring, and they will bloom at the usual time, while the roots left in the old bed will insure stalks that will bloom admirably later in the season, and down to the severest frosts of November.

TROPICAL BEDS.—A feature of magnificent interest in any garden is a tropical bed. Plant the better varieties of Ricinus, especially sanguineus, the tallest and richest Cannas, an abundance of Gladiolus, Lobelia cardinalis, Yuccas, etc. Allow room for the Ricinus to expand in; but if the Lobelia runs its magnificent scarlet stem through the foliage of the former, all the better. The Gladiolus can also be crowded, the closer the better. A few Euphorbias and Coleus likewise work in well.—*American Gardener's Monthly.*

EAST.

NORTH.

66 FT.



SOUTH.
GROUND VINERY AND PROTECTIVE BEDS.

36 FT.
WEST.

GRAPES FOR THE MILLION.—No. IV.



TO find a place for a seven or fourteen feet length of "Ground Vinery" cannot be a matter of much difficulty in any garden. But it may happen that some of our readers contemplate the adoption of ground vineries on a somewhat extended scale, and it cannot be otherwise than appropriate to this series of papers if I now offer a few suggestions on the best method of laying out a piece of ground for the cultivation of grapes and vegetables side by side, and which shall bear the name of

GROUND VINERY AND PROTECTIVE BEDS.

The object of combining two systems of cultivation is to economize the glass and make it pay interest on its cost the whole year round. In No. III. (p. 102) it is remarked that "to make the most of such a structure, the cultivator should lay out in autumn a series of beds of the same width as the vineries. In these beds should be planted," etc. It is just a question now how this had best be done, and thereupon I make the proposal which I have embodied in the diagram which occupies the opposite page. I shall briefly describe this plan, and leave it in the hands of our readers for their consideration.

Mark out a piece of ground $66\frac{1}{2}$ feet long and 36 feet broad. If the greatest length lies east and west it will be better than any other direction, but it does not much matter what is its direction provided it lies open to the sun, is well drained, and enjoying a little shelter from north-east winds. *It must not be overhung by trees.* Mark out all round a 4-feet walk; perhaps a narrower walk might do, but I should greatly prefer 4 feet, because the walk has to serve also as a border for the roots of the vines, and there must be a certain amount of wheeling all the year round, for manuring the beds, etc. Next mark out divisions across the piece $3\frac{1}{2}$ feet wide and $1\frac{1}{2}$ feet wide alternately. At the end of every alternate bed plant two vines; the other beds are to be reserved for cauliflowers, saladings, and other subjects that require protection in winter.

The next business is to provide the glass frames or "Vineries," whether from Mr. Dennis, Mr. Wells, or the district carpenter. Seven-feet lengths will do to begin with, but the arrangement is for every vine to have 14 feet of glass ultimately, which makes each separate length 28 feet. The frames are to be 42 inches wide, to accommodate two vines each, and the beds will be the same width throughout, with alleys of 18 inches width between. Let us suppose, then, that the whole affair is finished. We have in the six compartments marked A, 24 vineries, making a total run of 168 feet of glass, and as there are two vines in each, the total length of bearing rods is 336 feet. At p. 102, it will be seen that Mr. Wells has grown in a single rod vinery more than a bunch for every six inches run throughout. Let us suppose only half this total to be obtained

from our scheme, and if the bunches only average one pound each, we may expect an annual supply of 336 lbs. of grapes, so we may set down our expectations at from 300 to 400 lbs. when the rods quite fill the space allotted them.

The beds marked B are to be cultivated the whole year round with useful vegetables, one important part of the routine being to plant them all in autumn with cauliflowers, lettuce, endive, sweet herbs, or the hardier kinds of bedding plants. As soon as the weather becomes wintry, the glass frames are to be removed from the vines and placed over these beds; they are to be placed on bricks, of course, to allow of ventilation, and during very severe weather mats must be put over and the ventilating holes must be stopped with moss or straw, or half bricks inserted. A total length of 168 feet of protected beds would be of immense value to those who prize early cauliflowers, lettuces, and such other subjects as would be kept through the winter in them. Instead of having to lift and replant them, as is the case when we winter them in frames, they would simply remain where planted in autumn, the lights being removed from about the end of April or later, according to the state of the weather. This would expedite the maturation of the crop considerably, as there would be no check from lifting or sudden exposure of protected plants to cold winds, which is the common case in kitchen garden routine, for the frames would be put on the cauliflowers at night and on the vines all day, at that critical season when winter and spring are contending for the mastery. The only effect of such treatment would be to retard, not injure the vines; and as such things as Hammersmith lettuce and sweet herbs of most kinds do not need protecting so late in the season as cauliflowers, vines desired to be started early might have their glasses put on about the first week in April, by which time the protected vegetables would be out of danger.

In all my experience, I do not think I have ever seen a proposal which, by its obvious utility, so commended itself to the favourable consideration of amateur cultivators as the one I now submit. It may indeed be worth the attention of market gardeners, indeed I think it would be a great improvement on the methods usually followed in many market gardens in the growing of cauliflowers, lettuces, sweet herbs, etc., etc. There is just one thing to remember as regards its suitability for both the amateur and the market grower, that whereas the first would prefer Mr. Dennis's or Mr. Wells's neatly-finished vineries, the second would go to work and make them for himself. It is a very simple affair of carpentering and glazing. To say how it should be done would be to load this series of papers with needless descriptions. I shall, therefore, pause once more, but with the intention of again returning to the subject of Grapes for the Million.

SHIRLEY HIBBERD.

NOTES ON OPEN-AIR VINES.

BY R. A. SALISBURY.



ANY years ago, the writer of this paper had an extensive range of glass-houses, built chiefly for the cultivation of exotic trees and plants, half of which being removed into the open air for seven months, the rafters were devoted to training vines along them; and the climate being cold and soil unfavourable—namely, one of the more barren districts of Yorkshire—some of the grapes never ripened well, no artificial heat being given, as a far more abundant supply than was wanted, ripened in his other frames and hot-houses. A very large brick building adjoining this range of glass was covered entirely with a single vine of the miller's grape, and as it was ornamental to the building, it was pruned and trained yearly, at no trifling expense, though it very seldom ripened twenty bunches out of from 1000 to 2000, which it annually bore.

A Scotch nobleman, who often visited the place, one autumn made the following remark, and, I believe, nearly in the following words:—"When I was a young lad, I remember eating ripe grapes from a vine in the open air near Stirling Castle, which was brought to ripen half its crop in most summers, and a whole crop in warmer summers, by the following treatment:—On the 20th of September prune the vine as you would in the month of December, taking off all the leaves and grapes, ripe or unripe, and shortening all the branches to 1, 2, or 3 eyes at most. The following spring it will push its buds a few days before any neighbouring vines pruned in winter. Train it as carefully all summer as if you were certain it would ripen its crop of fruit. Pursue the same system annually, pruning the tree always between the 20th and 30th of September, and in the course of seven years you will be rewarded for your patience and expense with half a ripe crop in most summers, and a whole ripe crop in warm summers."

This mode of treatment was immediately begun in his lordship's presence, and five years afterwards some excellent wine was made from the grapes.

The only remarks I have to add to your intelligent readers are—

1st. That sage prince of gardeners, as Linné called him, Philip Miller, informs us, that if the vineyards in the north of France are neglected, it takes seven years' careful pruning and proper treatment to make them ripen their crops of fruit.

2ndly. The experienced President of the Horticultural Society has found that all vegetables, which require to be left in a state of inactivity during the winter, vegetate sooner in spring, if that state of inactivity is brought on sooner in autumn; hence, though the winter of 1824-5 was so mild that a small-leaved myrtle and geranium zonale survived in the open air, in the court of the writer of this paper, near Bryanstone Square, the spring flowering plants and shrubs, and even the almond trees, blossomed remarkably late, considering the temperature of the season; and what is still more to

the point, he observed winter aconites and crocuses in blossom from north of the river Trent so far as York, where the winter had not been so mild as in the southern counties, but several days of continued frost and snow had occurred; those flowers, with the meze-reon being much more advanced than in the gardens and nurseries about London, which were visited the day before he left London.

3rdly. To any person, who wishes to pursue this mode of hastening the maturity of grapes, north of Stamford in Lincolnshire, he recommends the cultivation of the miller's or Burgundy grape exclusively, for he has found it unaffected by smart frost, when the shoots of the muscadine and sweet water were injured; and this is easily and physically accounted for by the very thick wood of its young shoots.

4thly. In the more southern counties, where many varieties of grapes ripen better, still an attention to the practice now recommended will ensure a superior flavoured crop, and some of the very best Grisly Frontiniacs he ever tasted were produced in the late Earl of Tankerville's garden, at Walton-upon-Thames, when under the care of Mr. John Dudgeon, who afterwards lived with Dr. Fothergill.

WISTARIA CONSEQUARIA; OR, GLYCINE SINENSIS.

BY MR. JAMES CUTHILL, OF CAMBERWELL.



THIS plant is one of easy cultivation, and, when pruned properly, a most beautiful object when in bloom. It is one of those plants that can be severely handled by cutting, stopping, and making it a dwarf, handsome, flowering plant. We are not over abundant in early in-door flowering plants, and upon making this sweet and beautiful plant one more, I wish to make a few remarks. In the first place, I have a fine plant on my house, growing up the wall, and that has been cut in most severely every year, until it has thrown out its latent buds, and has formed spurs in all directions. One branch introduced itself into an old greenhouse three years ago, and has every year bloomed profusely; and is now, April 20th, coming into full bloom, with seventy spikes, or racemes. I have always noticed that the flower is redolent with perfume, which is not so much when exposed in open air. This branch always flowers at least a month before the same tree flowers out of doors. Neither is this house heated by hot water or flues. The above tendency to early flowering proves to me that, if properly managed as potted plants (that is, by pinching, stopping, and cutting in and clothing all up the stem, and keeping the plants in a warm place to ripen their wood properly, and make them produce plenty of flowering buds), this plant would quickly take its place as an early flowering shrub. This plant is to be had at every nursery in pots, and is most reasonable in price. In conclusion, mind the Chinese plan of continually nipping in, or stopping, must be rigidly followed out. I am not a nurseryman, and it is no use writing to me for plants.

HOEING AND WATERING.

HOEING is one of the much-neglected operations of which few have considered the value, and to keep down weeds is generally the sole object of using the hoe. Certainly that is a good object, and if these observations quicken the vigilance of gardeners who are a wee bit careless upon the growth of groundsel, couch, and bind-weed, and other rampant weeds among their crops, it will serve one good purpose. But it must have frequently come under the notice of practical men that a piece of cabbage or cauliflower frequently hoed between, even to the extent of working the instrument very near their roots, always grow to finer proportions than similar breadths left to take care of themselves, with the ground trodden between to the hardness of a Babylonian brick, "to keep the moisture in and the heat out." In such a case it is made evident that there is a virtue in the hoe beyond the killing of weeds that rob away the nourishment required by the crop; and if the problem of their well-doing is to be solved by observation, it must be at daybreak, when every leaf is loaded with dew. Then it will be seen that ground recently hoed or pointed over with a small fork is uniformly moist, while hard ground adjoining the same plot is almost as dry as during the heat of a sunny day. The solution is simple enough. The rough open surface absorbs a vast amount of dew, not simply because it is broken, but because it presents a greater extent of radiating surfaces, for the deposition of dew depends on the radiation of heat at the immediate surface, and the subsoil need not and will not be colder than the subsoil of hard ground, although it has a greater power of surface radiation. In fact, ground frequently hoed becomes warmer from its more ready absorption and conduction downwards of solar heat, so that the roots of the plants are kept warmer and moister in broken ground than in close hard ground, and therefore the vigorous growth of vegetation is promoted. M. Duchartre has made systematic inquiries on the deposition and effect of dew upon plants, and his conclusions are reported in the "*Annales des Sciences Naturelles*." In the conclusions there is nothing new. We have ourselves frequently indicated to gardeners that the chief benefit of dew to plants arose through its absorption by the soil for the nourishment of their roots.

M. Duchartre's experiments show that if the dew is allowed to settle on the leaves of plants, and not on the soil in which their roots are, they gain nothing in weight, whereas, when the dew is allowed to condense on the soil, they gain considerably. A plant weighing 966.50 grammes was so placed that the soil in the pot had the full influence of the dew, and it had gained in weight, when the dew was removed from the leaves, 13 grammes. Another weighing 1034.25 grammes, gained 6.90 grammes. In other experiments, where the soil in the pots was hermetically sealed, there was not only no gain of weight by the dew, but a positive loss, which goes very far to prove that plants do not absorb much moisture by their leaf surfaces, and may perhaps give a new turn to our ideas on syringing. But let that pass, we will not throw away the syringe yet awhile. Plants with hard waxy leaves, such as *Veronica Lindleyana*, certainly do not absorb much, but they need to be kept clean; and plants with porous leaves, like the vine, do absorb largely, and may be kept alive for some time with the roots dried up, if the leaves are frequently wetted. But the hoeing is the matter we wish our readers to think about and act upon. The hoe is an irrigator of as much value to the English gardener as the Shadoof is to the wretched cultivator of millet on the banks of the Zab or Tigris, and where people are wasting their strength in conveying hogsheads of water which are often more harm than good, the labour might in most cases be saved, the ground kept clean at the same time, and the plants encouraged to push their roots about in search for nourishment by the use of the hoe, and the hoe alone. Take notice of a rhubarb leaf; the midrib forms a depressed groove, and the leaf slopes up on each side of it, somewhat in the fashion of the two sides of a wooden water-shoot. The upper surface of the leaf-stalk is channelled too, and all night long the leaf distils dew from the atmosphere, the water trickles to the midrib, and thence finds its way by the channel of the stalk direct to the heart of the plant, for the benefit of its roots and rising leaves. This is the way nature makes almost every plant its own irrigator; we must co-operate with nature, and by the use of the hoe assist the soil also to drink freely of the dew of heaven, that we may enjoy thereby the fatness of the earth.

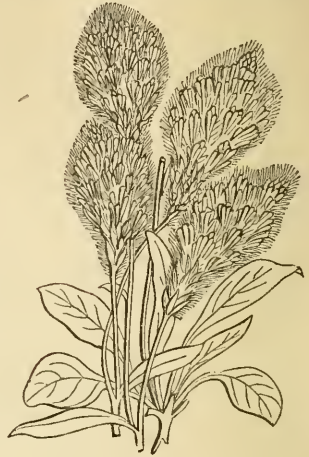
NEW PLANTS.



TRICHINIUM MANGLESII, *Mangles's Trichinium* (*L'illust. Hort.*, t. 464).—Amarantaceæ. A beautiful perennial herbaceous plant, from Swan River, introduced to cultivation by Mr. Thompson, of Ipswich. The leaves are oblong, spatulate, smooth, and dull green; the flowers are produced in brush-like spikes, of a lively rosy purple colour, beset with a multitude of long, snow-white hairs, and are exceedingly attractive and remarkably elegant.

ANGRECUM SESQUIPEDALE, *Long-spurred Angrecum* (*L'illust. Hort.*, t. 475).—Orchidææ. An epiphytall orchid, of grand dimensions both in growth and flower. It forms a stout, upright stem, clothed with oblong, enamelled, arching leaves; the flowers are produced singly, all the segments of nearly the same size; the nectary of extraordinary length, forming a caudal appendage; the whole ivory white, changing to creamy white. The odour emitted resembles that of the common white lily.

POLYCHILUS CORNU-CERVI, *Stags-horn Polychilos* (*Bot. Mag.*, t. 5570).—Orchidææ. A rare and curious orchid, long since discovered by Lobb, in Moulmein, but only lately introduced by Mr. Parish. It is an epiphyte, with the habit of *Phalænopsis*; leaves a span long, cuneate, leathery; flowers on a clavate stem, six to twelve



TRICHINIUM MANGLESII.

in number; sepals expanded, fleshy; petals rather smaller, yellowish green, barred with reddish brown; lip whitish, unguiculate, tripartite, the centre division crescent-shaped.

CYMBIDIUM HOOKERIANUM, *Dr. Hooker's Cymbidium* (*Bot. Mag.*, t. 5574).—Orchidææ. This noble species grows wild in the Sikkim Himalaya, where it is epiphytall. It has strap-shaped leaves, one and a half to two feet long; the flowers are borne on stems about the same length as the leaves, but they nod from the point where the flowers commence. Sepals and petals stellate, bright green, appearing as a calyx to the tip, which is the only part coloured. The tip is three-lobed, the middle lobe the largest, the colour yellowish white, with reddish purple spots. This plant is closely related to *C. giganteum*, and is probably only a variety of that species.

THIBAUDIA CORONARIA, *Small-leaved Thibaudia* (*Bot. Mag.*, t. 5575).—Vacciniaceæ. One of the many beautiful vacci-naceous shrubs, introduced to Britain by Mr. J. Bateman. It is elegant in habit, the branches clothed with small ovate, shining, deep green leaves, and producing



POLYCHILUS CORNU-CERVI.

axillary flowers, which are tubular; the calyx teeth yellowish green; corolla bright coral red.

! *MICROCACHRYS TETRAGONA*, *Strawberry-fruited Cypress* (*Bot. Mag.*, t. 5576).—Coniferæ. One of the most remarkable, though not the most beautiful of conifers. It inhabits the tops of the western range of mountains in Tasmania, where it forms low straggling bushes, the branches of which are clothed with evergreen, appressed, imbricate leaves, and at the points of which the fruits are produced. These are small globular or ovoid cones, with fleshy scales, the colour bright red. The female plant only is in this country at present, having been presented to the Royal Gardens at Kew by W. Archer, Esq., F.L.S., of Cheshunt.

IRIS RETICULATA, *Netted Iris* (*Bot. Mag.*, t. 5577).—Iridææ. One of the loveliest species of Iris in cultivation; the habit slender and graceful, the leaves narrow, flowers three to four inches in diameter, most richly coloured crimson, purple, ultramarine blue, and orange; fully justifying the oft-repeated remark, that in the irises we have flowers that equal in beauty the most gorgeous of exotic orchids.

CEROPEGIA SORORIA, *Kaffrarian Ceropegia* (*Bot. Mag.*, t. 5578).—Asclepiadææ. A slender branching climber, with long grass-like leaves, and curious moth-like flowers; the reflexed lobes of the corolla green, with purple bars, pink beneath, and moving with the slightest breeze. A beautiful, but not showy species, requiring greenhouse culture.

THE GARDEN GUIDE FOR JUNE.

FLOWERS OF THE MONTH.—*Greenhouse*: Pelargoniums, both of the exhibition and zonale classes, are now brilliant, and fully take the places lately occupied by azaleas and cinerarias. Among the plants that are especially interesting, but not so well known as a certain few showy subjects, the following are worth enumerating as likely to be in bloom now: *Gastrolobium obovatum*, *Anthyllis tragacanthoides*, *Banksia speciosa*, and *ericifolia*; *Diosma tetragona*, *longifolia*, and *tenuissima*; *Hardenbergia comptoniana*, *Aphelaxis humilis*, *macrantha purpurea*; *Kennedya prostrata*, *Hovea elliptica*, *Jacksonia grandiflora*, *Marryata nigricans*, *Abelia floribunda*, *Adenandra fragrans*, *uniflora*, *amœna*; *Cæsia vittata*, *Clematis odorata*, *Beaufortia latifolia*, *Calothamnus clavata*.—*Ericas*: *Rollisonii*, *odorata*, *pumila*, *rubella*, *Savileana Shannoniiana*, *Sprengelii*, *spuria*, *Thunbergiana*, *togata*, *tomentosa*, *translucens*, *tricolor*, *canescens*, *cinerea* (hardy), *staminea* (hardy), *parmenteriana*, *lachnæfolia*, *halicababa*, *acuminata pallida*, *imperialis*, *cubica major*, *aristata*, *Beaumontiana*, *Bergiana*, *comptoniana*, *densa*, *Dicksonia*, *lævis alba*.—*Orchids*: *Lælia Schilleriana*, *L. Xanthina*, *Oncidium ampliatum majus*, *O. bifolium*, etc., *Schomburgkia tibicinea*, *Trichopilia coccinea* and *crispa*, *Acineta Humboldtii* and *densa*, *Ærides crispum* and *pallidum*, *Æ. maculosum*, etc., *Æ. McMorlandi*, etc., *Æ. nobile* and *suavissimum*, *Æ. odoratum* and *Veitchii*, *Æ. roseum*, *Anguloa Clowesii*, *A. uniflora* and *virginalis*, *Atrophyllum cardinale*, *Vanda Roxburghii*, *V. teres*, *Sobralia macrantha*, *Dendrobium calceolaria*, *D. cretaceum*, *D. tortile*, *Barkeria melanocaulon*, *B. spectabilis*, *Brassia Lawrenceana*, *B. Wraya*, *Broughtonia sanguinea*, *Calanthe furcata*, *C. masuca* and *Domini* (hybrid), *Cattleya Aclandiae*.—*Garden*: *Viola calcarata*, *montana*, and *cornuta*, *Bahia lanata*, *Salvia rugosa*, *Achillea montana*, *eupatorium*, *ptarmica*, *tomentosa*, *millefolia rosea*; *Silene maritima*, *Geranium endresii*, *sanguineum*; *Coronilla squamata*, *Spirea filipendula*, *Dictamnus fraxinella*, *Ononis rotundifolia*, *Crucianella stylosa*, *Lotus corniculatus*, *Prunella Pennsylvanica*, *Verbascum phœnicium*, *Polygonum viviparum*, *Symphitum caucasicum*, *Lysimachia thyrsoiflora*, *Lychnis viscaria splendens*, *Stenactis speciosa*, *Genista sagittalis*, *Armeria cephalotes*, *Vittadina lobata*, *Dianthus atro-rubens*, *Lychnis Haageana*, *Dianthus cæsius*.

FRUITS IN SEASON.—*Apples*: French Crab, K D; Golden Harvey, D; Norfolk Beefing, K; Sturmer Pippin, D.

Pears.—None.

Grapes.—Same varieties as last month; also Muscat of Alexandria, Bowood Muscat, Canon Hall Muscat, and Black Damascus.

Various.—So many kinds of fruit are now in season from the forcing houses, that it is scarcely needful to enumerate varieties. In addition to grapes, which are abundant, good supplies may be expected of peaches, nectarines, apricots, plums, cherries, figs, pineapples, gooseberries, currants, raspberries, apples, pears, and melons.

GARDEN WORK.

Kitchen Garden.—A quick eye and quick hand are now necessary to keep pace with the season. Weeds grow apace, and the pests of the garden are in fullest vigour. Prick out cauliflowers from the seed-bed; plant celery in trenches well manured, transplant cabbage, kale, broccoli, etc., between showers, or else give plenty of water. Plant out vegetable marrows, ridge cucumbers, tomatoes, and capsicums. Hand weed onion beds. Potatoes ought to have been all planted long ago, but if there is room for a patch where any other crop has been taken off, they may still be got in. Thin out wherever crops are crowded, and keep the hoe and water-pot in constant use, and let not a drop of liquid manure or liquid sewage be wasted. The best season for transplanting hardy evergreens is during June and July. Any gaps in the borders and shrubberies may therefore be at once filled up, and beds of rhododendrons and other Americans may be planted. Water well until the July rains come on, after which they will be safe. Sow salads, kidney beans, broad beans, and peas, for succession. Sow principal crops of broccoli and turnips.

Fruit Garden.—Cut all runners away from strawberries, unless new plants are wanted, in which case plunge pots under the joints, and let them root into pots at once. Vines want frequent attention now, to thin out superfluous shoots and train any wanted to cover any gaps in the wall. Continue to disbud wall trees, and where this has been neglected, take away foreright shoots, first by nipping off the point; and in another week cut them back to the old wood. Bud plums, peaches, and apricots. Prune away the centre shoots of currants and gooseberries, to keep the bushes open.

Flower Garden.—June is the season rather than May for general bedding-out, and dull weather should be chosen for the task. Dahlias may still be put out, and late-blooming herbaceous plants may be planted. Pompones struck now will make good plants. Syringe roses with weak tobacco-water, if at all infested with fly, follow with a syringing with clear water. Plunge pot-plants in coal-ashes. Shade flowers intended for exhibition. Take up bulbs as soon as the leaves fade.

Greenhouse and Stove.—As soon as the ordinary stock is turned out to harden, clear the house, and get some balsams and asters forward to keep the stages gay during the next two months. Put up shading to prolong the beauty of plants in flower. Cut in any plants that have done blooming; repot pelargoniums when they have made plenty of short shoots. Stove plants will want abundance of water, and New Holland plants should have frequent shifts.

NEWS OF THE MONTH.

ROYAL BOTANIC SOCIETY, FIRST GREAT SHOW, MAY 9TH.—The season has opened grandly at Regent's Park. This was a grand show; the weather was delightful, and just before the public were admitted a royal party arrived, comprising their Royal Highnesses the Prince and Princess of Wales, the Duchess of Cambridge, the Princess Mary of Cambridge, and Prince Teck, with their respective suites. Nothing could surpass the splendour of Messrs. Lane and Son's pot roses, the specimens of gigantic dimensions, and laden with glorious blooms; or Mr. Turner's and Messrs. Veitch's azaleas. In place of the usual bank of orchids on the north side of the tent, there was this time a bank of pelargoniums, with a few azaleas intermixed, a remarkable display of colour. Elsewhere in the bays, the orchids were grouped, and they were few enough to indicate one of the specially weak points of the show, and at the same time sufficiently numerous to compel notice of them as belonging to a class to which the council had shown the cold shoulder. The arrangement was most tasteful; the effects produced were beautiful, and the filling up of gaps was all that could be desired by the most fastidious and experienced in such matters. *Azaleas.*—Mr. Charles Turner first in the trade class for eight. The plants were in the form of rounded cones, such as would usually be called pyramids, averaging six feet high and five feet through, evenly bloomed, and quite remarkable as masses of colour. The varieties were Coronata, Magnificent, Sir C. Napier, Optima, Gledstanesi, Juliana, Conqueror, Variegata. Messrs. Veitch second with plants a little less regular in training, and a size smaller all through. They were Iveryana,

Coronata, Prestantissima, Criterion, Herbertii, a lovely white; Extranei, Stella, quite grand as a specimen, the quality of the flowers as good as when shown in a small state among the novelties; Cedo Nulli, a fine rosy-purple. The same exhibitors competed in sixes. Mr. Turner had Gledstanesi, Holfordii remarkably well done; Perryana, Etoile de Gand, Iveryana, Gem. Messrs. Veitch had Violacea, the colour a superb satiny rose with violet shade; Empress Eugenie, magnificent; Holfordii, Flower of the Day, Rose superba. Good collections were shown by Messrs. Gill, Penny, and others. Messrs. Cutbush and Son, Highgate, made a pretty central group of mixed plants, consisting of Eriostemons, Boronias, Aphelexis, Rhododendrons, and Azaleas, all in the form of round bushes, adapted for small conservatories, and just showing how a bank or stage in a conservatory should look at this time of year. The principal Azaleas shown in this useful group were Prince Albert, Criterion, General Williams, Dr. Augustin, Alexander II., Princess Royal, Magnificent, Donna Maria, Eulalie, Van Geert, Napoleon III., Dieudonné spae, Modele, Roi Leopold. *Pelargoniums* were in excellent condition for so early a period of the season. In the trade classes, Mr. Turner first, Mr. John Fraser second. Mr. Turner's nine plants in the show class were trained very low, almost flat, and were less effective than Mr. Fraser's, which were of a more agreeable convex outline; they were, however, finely cut and beautifully finished. The varieties were Empress Eugenie, Candidate, Lilacina, Beacon, Desdemona, Lady Canning, Celeste, Rose Celestial, and Fairest of the Fair. Mr. Fraser's were Empress Eugenie, Candidate, Osiris, Rose Celestial, Roseum, Fairest of the Fair, Fair Rosamond, Beadsman, and Peacock. In the amateur class Mr. Ward, gardener to F. G. Wilkins, Esq., Leyton, took place with a splendid batch of nine, only inferior to those of Messrs. Turner and Fraser, as private collections always are inferior. Mr. Ward's varieties were Lilacina, Rose Celestial, The Bride, Spotted Gem, Fairest of the Fair, Nestor, Peacock, Fair Rosamond, and Sir Colin Campbell. Mr. Wiggins put up a good nine, amongst them were Alma, noticeable for colour, which is intense rosy-crimson, and Pline, curious flame-like carmine. Fancy *Pelargoniums* were as complete and finished as the showy kinds, and made a very gay bank. Mr. Turner first with Lady Towers, Modestum, Undine, Lucy, Evening Star, Roi des Fantaises, all exquisitely finished. Second, Mr. Fraser, with Undine, Maroon, Cloth of Silver, Arabella Goddard, Clara Novello, and Marionette; a beautiful group. Mr. Weir, gardener to Mrs. Hodgson, The Elms, Hampstead, came up in great force with such fresh and rich-coloured plants as he has on former occasions astonished the amateurs with; the best amateur grower of them we have, in fact. The varieties were Queen of Roses, Mrs. Stewart Hodgson, pretty rose-pink top, lower petals white with light rosy crescent; Celestial, Acme, Madame Sontag, and Carminatum. *Auriculas*.—Mr. Turner sent a collection of show varieties, and a collection of alpine. They were in fine condition, with plenty of substance and colour, but without a trace of coarseness. The following is a complete list of the show varieties:—Hudson's Apollo, Leigh's Colonel Taylor, Womersley's Desdemona, Trail's Florence, Headly's Stapleford Hero, Lightbody's Fair Maid, Smith's Great Eastern, Headly's George Lightbody, Cheetham's Lancashire Hero, Lightbody's Star of Bethlehem, Smith's Lycurgus, Campbell's Lord Palmerston, Smith's Lady Sale, Martin's Mrs. Sturrock, Strong's Sir Isaac Newton, Barlow's Morning Star, Smith's Ne Plus Ultra, Turner's Negro, Lightbody's Richard Headly, Read's Miss Giddings, Buckley's Miss Ann. *Pansies* were admirably shown by Mr. James, of Isleworth, who had the following, which may be considered a safe collection for any amateur who wants a choice few:—Stonewall Jackson, Blink Bonny, Alexander Tait, Miss Hill, J. B. Downie, Cupid, Hugh Miller, Rev. H. Dombain, Thomas Martin, Sir L. Stuart, Charles Turner, Miss Muir. Mr. James also put up a nice 24 cut blooms, as did also Mr. Kingston, of Bristol Road. *Ericas*.—Mr. Rhodes, of Crystal Nursery, Sydenham, took first prize in the class for eight heaths with superb examples of Elegans, Vasiflora, Affinis, Victoria Regina, Beaumontea, Cavendishiana, Aristula major, Eximia superba. Second, Messrs. Jackson, of Kingston, with Elegans, Hartnelli virens, Candidissima, Florida elegans, Cavendishiana, Propendens, Tubiflora, Webbiana, Fastigiata lutescens; the last is a very peculiar and beautiful heath, crowded all over with its porcelain-white flowers, all showing the sharp quadrangular limb, which is as much a character as their fastigate arrangement. *Novelties*.—Geraniums of all kinds were shown in plenty, but there were very few good subjects amongst them. In

Mr. William Paul's lot the best was a pretty hybrid of the 'quercifolium' race, with small elegant rosy-pink flowers. The name of this is Little Gem, and it is well named. Among the zonales from the same exhibitor, the best was St. George, the leaf and growth like Punch, the flowers a fine deep crimson-scarlet. Messrs. E. G. Henderson and Son sent a batch of tricolors, the most noticeable of which were Spanish Beauty, quite in the style of Mrs. Pollock, but with brighter colours; Sophia Dumaresque, very neat growth, the leaves flat and nicely disposed, colouring precise, sulphur margin, zone bronze overlaid with lively red, which occasionally breaks in fine bars towards the margin, centre green; Waverley, small leaves, very bright rosy-red zone. From the same, Beauty of Oulton, a bold cinnamon zone and fine scarlet flowers. From Messrs. F. and A. Smith, of Dulwich, Bronze Shield, very broad rufous brown zone, sulphur-green centre, scarlet flowers; King, in the style of Bronze Shield; Gipsy Queen, in the same style; Mrs. Charles Barry, a very fine cinnamon zone, heavily and sharply laid on; full of character. Better than all these was Mr. Hoyle's Pelargonium Alfred, the petals of the same breadth and smoothness as in John Hoyle, top dark maroon, with sharp fiery-red margin, lower petals rose, overlaid with lake veins, throat white; a grand flower. From the same, Victoria, top blackish-crimson, breaking into lake veins, and lively red margin; lower petals rich carmine, with faint touch of violet in the throat; this wants finish. From Mr. Bull, Selaginella Mertensii albo variegata, patched with white variegation; Machærum firmum, a fubaceous plant, not in bloom, and nothing remarkable in leafage; Mimulus duplex Brightness, a great beauty, doubtless the very best of the showy duplex race; better than all else in Mr. Bull's lot was Abutilon vexillarium, which is of delicate twining habit, small cordate acuminate leaves, flowers dull red with yellow limb, the appearance of the plant very much like a large edition of Tropæolum tricolorum.

INTERNATIONAL EXHIBITION, SOUTH KENSINGTON, MAY 22 to 31.—This glorious affair surpassed by many degrees the results anticipated by the most sanguine of its promoters, and in every detail was successful both for the interests of horticulture and the gratification of public taste and curiosity. On the site of the International Exhibition of 1862 a space more than three and a half acres in extent was marked out and covered with canvas, and within this space the ground was laid out in walks and terraces, in various levels, with turfed embankments, rockeries, waterfalls, gorgeous flower-beds, and groups of evergreen trees, and shrubs from the hardy hollies and pines to the costly and tender palms, tree ferns, and other trees of tropical and subtropical regions. The total length of the tent was 562 feet, the breadth 293. Added to this, there was a tent 560 feet long by 40 feet wide, appropriated to exotic orchids, this compartment being kept at a suitable temperature by means of a new boiler invented by Mr. Ormson. The area of this tent was 400,000 cubic feet, the length of pipe heated 3200 feet, and the quantity of water always in circulation 1760 gallons. All this was accomplished by means of a comparatively small boiler and with a small consumption of fuel, one of the notable points in the construction of the furnace bars being the admission of air beneath the fire, and in such a way as to quickly disperse among the burning fuel, so as to effect a complete oxidation. On the day of opening, the Exhibition was visited by a party comprising their Royal Highnesses the Prince and Princess of Wales, Prince Alfred, Princess Helena, the Duke and Duchess of Cambridge, Princess Mary, Prince Teck, and other august personages. The attendance on the first day, when the entrance fee was twenty-one shillings each person, amounted to 10,000. Throughout the whole term of the Exhibition, numbering in all ten days, the number of visitors reached about 150,000.

A large proportion of the green furniture, *i.e.*, the palms, ferns, and other costly plants used to give relief to masses of flowers, were furnished from the Royal Gardens at Kew. But in addition to these, Messrs. Veitch, Lee, W. Paul, Charles Turner, Paul and Sons, Waterer and Godfrey, and other great cultivators, sent collections of yews, hollies, coniferous trees, and miscellaneous shrubs, and in the majority of cases these were planted in the ground in masses, to give effect to flowering plants placed in front of them. The general arrangement consisted of a series of compartments divided by broad walks, and all dipping towards the centre where there was a circular bed of palms and ferns, the ground between surfaced with the gorgeous colouring of *Dracæna terminalis*. On either side of this were two great crescents faced with pelargoniums, making an extraordinary display of colour.

The pelargoniums in these two crescents numbered 131 specimen plants, the majority of them four to five feet in diameter. These were contributed by Messrs. Turner, Fraser, Bailey, Weir, Donald, Shrimpton, and Foreman. Beyond the two crescentic compartments was a great circular walk all round, the same crescents forming the inner banks to this walk, and the compartments next beyond flanking them on either side. Here was a brilliant display of zonale geraniums, from Messrs. Fraser, E. G. Henderson, F. and A. Smith, and several private growers; also an extraordinary collection of azaleas, one batch comprising at least fifty plants from Messrs. H. Lane and Son. From this central position, the ground rose in every direction, and was laid out in great compartments, with walks between. At all the points where walks intersected, great groups of azaleas, roses, and other showy subjects were stationed. Many of the collections of these from the gardens of private gentlemen were marvellous for their finish and brilliancy. A few trade-growers, however, took the lead, creating no less surprise by the astonishing quantity of plants they poured in, than by the perfection of blooms in which they were exhibited. The number of azaleas shown by Mr. Turner, of Slough, and their generally beautiful condition, rendered them an exhibition of themselves; but this was not the only department wherein the hero of Slough stood high above the rest, and, if we may so say, surpassed himself. Roses in pots were shown on a gigantic scale by Messrs. W. Paul, Paul and Sons, Lane and Sons, Francis, Turner, and by many private growers. Rhododendrons, too, were not merely shown in classes, but were planted out in great beds, and one beautiful slope, overlooking a rockery and water scene, was filled with two brilliant masses of plants by Messrs. Lane, of Berkhamstead, and by Messrs. Jackman and Sons, of Woking. This was called the "Rhododendron Valley," and was one of the special features of the exhibition. In quieter parts of the show, yuccas, aloes, Beaucarneas, were distributed freely, many of the specimens shown being unique in size, condition and rarity, and worth sums that if named would seem fabulous. Foremost among exhibitors in these classes were Messrs. A. Verschaffelt, of Ghent; B. S. Williams, of Holloway; Veitch, of Chelsea; Osborn, of Fulham; Linden, of Brussels; and Jackson and Son, Kingston. A very pretty collection, comprising unique specimens, came from Dr. Kellock, of Stoke Newington, who has for many years collected and cultivated plants remarkable for fine foliage. Orchids were, of course, shown in great plenty. There has never before been so grand a display of orchids in this country, and many of the specimens were extraordinary, both in size, perfection of bloom, and freshness of condition. In these classes, Mr. Warner, of Chelmsford, Messrs. Bullen, Peed, B. S. Williams, Veitch and Son, Penny, Bull, Lee, Linden, Wilson, and Rhodes, were the principal exhibitors. If we pass over all the other subjects, it is because we have no space in which to describe or even name them. Next month we shall endeavour to sum up a few results, in order to place before our readers the names of species and varieties which, in this great contest, proved to be the best.

On the evening of the 22nd, a great international banquet took place in the Guildhall of the City of London, the Lord Mayor presiding. More than five hundred ladies and gentlemen sat down to a sumptuous dinner, tickets for which were bought up with avidity at three guineas each. The Lord Mayor conducted the proceedings in a remarkably efficient manner; and during the evening Professor A. de Candolle, the greatest of living botanists, addressed the meeting. On Wednesday, the 23rd, the exhibition was again crowded, the charge being ten shillings each.

On Thursday, the 24th, the weather was cold, and the attendance was smaller than was anticipated, as this was the first "people's day," the charge being 2s. 6d. However, the attendance numbered many thousands. In the evening of the same day, a horticultural banquet took place at St. Martin's Hall, Long Acre, Lord H. G. Lennox, M.P., presiding. The principal speakers were Mr. Mitchell, Sir W. D. Icke, Mr. Harry Veitch, and Mr. William Paul. On Friday, the 25th, was the first of the shilling days, and thence to Thursday, the 31st, the exhibition was crowded daily. As the gravel space afforded room for 50,000 persons at one time, and the grass-banks accommodated 60,000 plants, our readers who were not at any time present will be enabled to form some idea of the gigantic scale of the undertaking.

On Wednesday, and Thursday, May 23 and 24, a Botanical Congress was held in the Raphael Room, at South Kensington Museum, under the Presidency of A. de Candolle. Various papers were read, and discussions ensued thereupon, some particulars of which we shall give next month.

TO CORRESPONDENTS.

LIQUID MANURE.—*E. H. W.*—Any manurial matters can be, to a more or less extent, dissolved in water for the production of liquid manure, and the strength of the material used must regulate the quantity of water applied, and the nature of the plants to be fed with it. The following are generally useful mixtures:—One part by weight of fresh cow dung, to six parts by weight of water; stir and leave it some hours to settle; use only the clear liquid. The drainage from the stable and cow-house is a most valuable basis for liquid manure; add to it eight times its bulk of water. The brown liquid that flows from new dunghoops is to be used in the same way. One part of fowl's dung to eight parts of water. One peck of fresh sheep's dung to thirty gallons of water. Sulphate of ammonia, half an ounce to every gallon of water. Guano, half an ounce to the gallon of water. The best of the prepared manures is "Standen's Gardener's Friend," sold by Barr and Sugden, and the best way to use it is to sprinkle it on the surface of the soil, that the watering may wash it down to the roots. In all cases it is best to give liquid manures weak, and especially at first. If it is intended to give a plant strong doses, a few weak ones should be given first to prepare it, but to be always weak is much safer and more beneficial in the end, for an overdose will cause the leaves to fall or to become blotched, and do other injuries that need not be enumerated.

RAPHANUS CAUDATUS.—*W. B.*—The rat-tailed radish is both interesting and useful. It grows to the height of two to four feet, and produces numerous slender purple pods that attain a length of from one to three feet. We have at the present time a considerable number of plants bearing pods eighteen inches long, and still growing. These pods are described as delicious eating; and as the plant is a favourite in Java, India, and America, no doubt it will be esteemed here. If you wish to grow a few, we advise you to sow the seed in small pots, and when the plants have filled those pots with roots, transplant them to a rich, sheltered border, and give abundance of water, until the pods are fully grown. If grown under glass, the pods do not attain so great a size, nor are the plants so healthy.

STATICES, ETC.—*J. L.*—We cannot imagine what is the matter with your statices. A genial greenhouse temperature is needful to keep *S. Holfordii* in health. Yours may be too hot or too cold. The next best thing to hot-water pipes for heating is a furnace and brick flue. The best stove to place *inside* the house is made by Mnsgrave, Brothers, Belfast. It requires no setting, and will burn twelve hours without attention.

RIBES SANGUINEA BONSOIR.—This shrub does not require pruning at all, and it shows great discretion on the part of your trees to die as soon as they have been pruned. In future keep the knife out of their sight. The only way to insure a good bloom of violets is to raise young plants annually as described in Mr. Barnes's article. You shall have an article on evergreens shortly.

VINES, TACSONIA MOLISSIMA.—*Sudbrook*—You probably keep the soil and the atmosphere too dry, for mealy-bug usually infests plants that are not growing freely. You ought to have painted the stems of the vines before the leaves appeared with the following mixture:—Soft soap, 2 lb.; flowers of sulphur, 2 lb.; tobacco, 1 lb.; and a wine-glass of spirit and turpentine. The tobacco to be boiled for an hour in a small quantity of water. Soap, sulphur, and turps to be mixed first, then the tobacco-water added, lastly five gallons of water. This you may apply *now* to the woody parts, and not to the young shoots. These last had better be painted with thick starch paste, which is to be washed off in a few days. Cease to prune your tacsonia, let it grow as it likes, train it full length, and it will flower freely.

CAMELLIAS.—*S. G., New Cross*—Your camellias are covered with thrips. It is evident you do not keep the air of the house sufficiently moist, and you probably starve the roots. Remove and burn the discoloured leaves, shut the plants up rather close, and shade them, and give them plenty of water overhead and at the root. Probably they want repotting; if so, let it be done at once.

STIPA PENNATA.—*T. Y., South Milford*—The queries respecting shrubs for your soil shall have attention. How many seeds of *Stipa pennata* did you sow, and how many plants did you get up?

THE FLORAL WORLD

AND

GARDEN GUIDE.

JULY, 1866.

REACTION AGAINST THE BEDDING MANIA.



NINE years have elapsed since the FLORAL WORLD first endeavoured to direct the attention of amateur gardeners to the fact that the bedding system might be overdone, and that in many instances it had converted pretty gardens into paltry nurseries, where some half-dozen subjects were grown in batches of hundreds or thousands, to the exclusion of all other forms of vegetation. Never has a season passed since then without a protest in these pages in favour of making private gardens beautiful and interesting, instead of mere polychromatic patterns. If reference be made to past volumes, it will be seen that we never pretended to dictate to our readers; we merely stated our conviction that as the bedding system prevailed horticulture degenerated, for the simple reason that if gardeners had great stocks of bedders to care for, they could not give proper attention to other subjects; and the rage for bedding had reached such a height, that interesting and beautiful plants had been well nigh swept out of our gardens, and Tom Thumb geraniums had taken possession as monarch of the scene. But having expressed ourselves in this way, we left our readers to consider the matter as it pleased them; and as a large majority of our supporters were practitioners of bedding, we always offered them the best practical information respecting the relative merits of bedding plants, and the treatment they severally require to bring them to perfection. We blew hot and cold; but whether hot or cold, we always blew in earnest. We believe in bedding, and always did; in its place and well done, it is the grandest of all possible embellishments. A pavement of gems could not glow with such brilliancy as a well-coloured parterre. But it is very much to be regretted that, in small private gardens where promenade displays are not wanted—where, in fact, they are as much out of taste as liveried servants and a military band to play during dinner would be within the residence, that bedding plants should reign supreme, not only to the exclusion of numerous beautiful hardy and tender ornamental plants, but to the detriment of the kitchen and fruit-gardens, which are robbed of the labour they require in order that geraniums may be

planted and verbenas may be pegged down, and that bedded petunias may be held up against the wind to prevent their being blown to rags. A certain amount of bedding is wanted everywhere, but the majority of people got it into their heads that nothing else was wanted, and so the bedders came to be the Alpha and Omega of horticultural enterprises in too many of our private gardens.

We take to ourselves no credit for having effected a change, or for having induced a few thousands of our countrymen and countrywomen to consider this matter. The fact is, in the ranks of reflective horticulturists there are many who hold the same views as ourselves, and who have from time to time raised their voices energetically against the system of making every little garden a bad imitation of the terraces at the Crystal Palace. It is important, however, to note that a change is taking place. The public are less mad about bedders, and are awakening to a love of flowers. In a bedding display we have no flowers; that is to say, we take no notice of their forms and characters, for these are merged in the mass. All we take note of is the colour, and that occasionally is so brilliant that our vision is placed in jeopardy. In a good border of herbaceous plants we see flowers, and in an orchid-house we see flowers; yes, and we see flowers, too, when we get amongst the roses. But English gardeners have yet to learn how many wondrous and beautiful forms of vegetation may be gathered together in the common soil and open air of this country, and these they cannot become acquainted with by any royal method; they must begin collecting, observing, and cultivating, taking first those things that are best known to men of taste and judgment in such matters, and then, if their means allow, making experiments for themselves. But they will have quite enough to do to embellish the ground with plants that are as hardy as chickweed, and as beautiful as the plumes of the ostrich, or the spots on the peacock's tail, or the iridescent colours of the humming-bird; for the truth is, hardy herbaceous plants alone, good enough for places in the choicest garden, may be counted off by thousands, to say nothing of hardy trees and shrubs, that only need to be seen to win the admiration they deserve.

Amongst the proofs of a revival of the taste for beautiful plants, we may instance the enormous collection of herbaceous plants to be found at Messrs. E. G. Henderson's nursery, Wellington Road, St. John's Wood. Here, at the head-quarters of the bedding system, are thousands of rare, popular, expensive, cheap, interesting, and beautiful hardy plants, from the useful *Alyssum saxatile*, which throughout the month of May displays a mass of golden flowers which even the *calceolaria* cannot equal, to the rare *Linnaea borealis*, which many good botanists have never seen, and which may be considered a good index of the catholic spirit in which this great collection has been massed together. The catalogue in which these are described comprises no fewer than 2005 species and varieties, excluding bulbs, tubers, and corms. The collections of Messrs. Backhouse and Son, of York, enjoy a world-wide fame, and have recently been assailed most vigorously by eager purchasers of the exquisitely

beautiful alpine plants which this enterprising firm have introduced to this country. On several occasions at great exhibitions crowds of appreciative eyes have turned away from banks ablaze with pelargoniums to feast on the modest, but refined and lovely, alpine plants from Messrs. Backhouse. A collection of alpiners from this firm formed one of the most notable episodes of the recent International Exhibition, and people asked each other when they came to criticise the show in drawing-room gossip, "Did you see the wild flowers from the nursery at York?"

We have on several occasions presented lists of hardy herbaceous plants, and recommended our readers to take these useful subjects in hand. We shall resume this pleasing task, and intend to continue the work—pleasure is the proper word—of selecting useful and beautiful subjects adapted to various kinds of soils, and to the peculiar but accommodating climate of this country. Our lists will be given under the general heading of *THE CHOICE GARDEN*, and we shall take care to introduce nothing but what really merits the appellation "choice," be it herbaceous, ligneous, or otherwise. On the general question we have nothing more to say; we only request of our readers that they will again think the matter over. Lovers of bedding will have the best information we can give them on their favourites, and lovers of other subjects will not be forgotten.

HERBACEOUS CALCEOLARIAS.



ONLY a few of the most privileged people know anything about the magnificence of these plants when well grown, and still fewer know the secret of growing them properly. Considering myself a member of each category, I propose to say a word about the magnificence of the plants, and next the secret of growing them; and I first of all ask a question, Did you see the herbaceous calceolarias at the International? You did. Well, would you not like to grow such plants? Easy enough, I can assure you. Now let me ask, have you seen the collections of these plants that have been shown at the several great exhibitions at Regent's Park during the past five years? You have. Well, again I ask, would you not like to grow such plants? Of course you would; who would not? Ah! who would not? I should like to see the party who would say "I would not," in reply to that modest question. But amongst our thousands of readers there are of course many who have never seen good samples. Well, then, to such we say, imagine the flower of any common shrubby calceolaria expanded to four times its present size. Say a single flower of *Aurea floribunda* (which as a bedder of course you know) is to be blown out till it has a purse large enough to cover a crown-piece, and instead of being yellow it is to be deep crimson, with buff spots like a strawberry; or soft magenta with streaks of gold; or pale fawn with crimson dots; or rosy-red with flecks and dusty spots of white; or fiery orange with pencillings of fiery

scarlet; or palest primrose-yellow with streaks and splashes of delicate buff. Next imagine such flowers in trusses six inches across, and a hundred such trusses on a plant, and the foliage larger than you are used to, and the shape of the plant hemispherical, and all its parts evidencing health, and strength, and careful treatment. If, dear friend, you have now any proper idea at all, you have an idea of the sort of plants that Mr. James, gardener to Mr. Watson, of Isleworth, exhibits two or three times a year to the *habitués* of the Royal Botanic Gardens, Regent's Park, and a few of which he exhibited at the International.

You *would* like to grow some; of course you would. The fact is, there is not a more honourable ambition in the whole range of flower growing; for it is not a fool's task to do these plants well. They require skill, judgment, taste; and when well done, are gorgeously beautiful beyond description. Let me just state, in a few words as possible, how they should be done.

By seeds is the best method, and that followed by the most experienced exhibitors. Good seed may be had of any respectable seedsman, but if you want seeds of Mr. James's saving you must apply to Mr. B. S. Williams, Victoria Nursery, Holloway, for it. Suppose you have a pinch of good seed, the proper time to sow it is during the month of July. As a succession is better than a glut of anything, I should advise you to make two sowings—one in the first week of this month, and another just before the month goes out. I have just remarked that these plants are not easily grown, and to be honest with all our readers, I will here remark that unless they are well done, they become a nuisance and a disgrace; for besides giving a poor bloom, they show a wretched foliage, and are alive all over and always with green-fly. So begin properly. Sow the seed in very light, rich soil—say peat, leaf-mould, silver sand, and manure rotted to dust (three years old), equal parts. Prepare the seed pan with a nice bed of small crocks to make perfect drainage, lay on the crocks a thin spread of moss, then fill up quite to the edge of the pan with the compost, well mixed and broken fine. Press it gently to a smooth surface, wet it thoroughly, and sow thin. Sprinkle just enough of fine peat dust to cover the seed, and lay a thin coating of moss over. Place the pan where it will be warm, close, and shaded. A cucumber pit is a good place for it. The plants will soon appear, and the moss must be removed carefully. Keep them close and moist; they do not require much air, and as to water, they must never be soddened and never go dry. If they get dry, the aphid will appear immediately, and perhaps red spider too. The best of all (and the cheapest) shading for seed pans or plants during sunny hours is a newspaper gently laid over them, and of course to be removed as the day advances. As soon as there are a few plants large enough to take hold of, say with about three leaves besides the seed leaves, begin to pot them. Take thumb pots first, put one small piece of brick the size of a walnut at the bottom, and fill up with the same mixture as was used in the seed pan, and into each of these pots, plant one of the little hopefuls, water gently, and place them in a *warm*, shady place, where there is not much air.

Keep them growing, keep them growing, keep them growing. You see I am imitating Demosthenes; when they asked him the secret of oratory, he said, "Action; yes, Action; and again, Action!" If you do not keep them growing, why, they won't grow; but the vermin will, and you will regret it. As soon as another lot can be taken out of the seed pan, pot them, and so on till the pan is empty. By the way, the best method of lifting them out is with a bit of stick or the sharp end of a wood tally.

The after management consists in potting on as fast as they need it. After the end of August an intermediate house is the best place for them, or a shady, cool part of a stove. They do well where begonias grow freely, and the same moist atmosphere will suit both. At the first shift out of thumb pots the compost should be light, silky loam, such as will crumble to dust between the fingers without soiling them; what we call "forest loam" on the north side of London is the best ever used for the purpose. Take two parts of this loam, one part good leaf-mould, one part fresh horse droppings, rather dry, and the straw all removed. Mix this together, and break the lumps, but *do not sift it*. Pot into 60's, then to 48 size, and so on, till you have them in eight or ten-inch pots. But if done on a small scale, very nice plants may be flowered in pots of seven or eight inches width. Potting must be done at least once every three weeks all the autumn and winter, and about the middle of February you may consider the potting business at an end, and begin to think about flowers. At that time pick out the strongest plants, and remove from the stove to a warm greenhouse. In the first or second week in March take them to cold pits, and keep them rather closely shut if an east wind blow, but during those bursts of warm, moist weather, with a west wind, which generally occur in March, the lights may be taken off for a few hours, and the plants may enjoy a slight wetting. As the season advances, and they acquire some degree of hardiness by this treatment, give them more air, and at last expose them fully, but always shade them from very strong sunshine. As a matter of course, they will all find their way to cold pits by this course of treatment. They will have been grown with the aid of heat, and flowered in a cool free air, and their appearance at last will repay you for all your pains.

Vermin will occasionally appear, especially during September and February, even with the best of treatment. To allow them to get ahead is to sacrifice the plants. Shut them up when their leaves are dry, and smoke them thoroughly with pure tobacco. Do not risk the use of any preparation of tobacco, unless it be "tobacco tissue," which consists of tobacco only, and is merely prepared by pressing, not with chemicals of any kind. I have not tried the aphid wash upon them, but have no doubt at all it would cleanse them thoroughly, and without harm. The way to do it would be to mix the wash according to the directions that accompany it, with water, in a large tub or pan, and turn the plants upside down and dip them, keeping them in the mixture a few seconds, and then holding them above it to drain back before placing them on their feet again. Dipping wets every part of a plant, syringing does not. I say

nothing about tying out and many other small matters, for the simple reason that every cultivator either knows what to do or will soon find it out.

From cuttings.—This method of growing them has this advantage, that before you begin you know exactly what sort of flowers you will have, which is impossible with seedlings. The named kinds, which of course you would alone select from, are remarkably beautiful. The best time to take cuttings is immediately after flowering, and as soon as enough cuttings are obtained throw the old plants away, for they are useless, and should never be preserved except for some peculiar reason, and then it needs much care and skill to keep them in health. Short, plump, rather soft shoots make the best cuttings, and these root quickly in a mixture of half peat and half sand, on a gentle bottom heat, if kept close and shaded. When rooted, pot them on, and grow them to flowering size in precisely the same way as described above for seedlings. Cuttings may also be taken in February to make nice plants for a late summer bloom; and if a quantity of any particularly choice variety is wanted, cuttings should be put in whenever they can be got.

I shall not lengthen out this paper by any further observations, and I will not attempt to give a list of choice varieties, because there is not a bad one to be found among the named kinds. I have for several years taken the names of the best kinds at the great shows, but these names are of no use, for the plants were seedlings named for convenience merely, and to bring them within the rules of exhibiting. Not having been propagated, no one can obtain them. If I wanted a collection of named kinds to begin with, I should order them of Mr. John Salter, of Hammersmith, who is the only trader who (so far as I know) makes a feature of them in his catalogue. But I greatly prefer a pinch of Mr. James's seed from Mr. B. S. Williams, and before this is published I shall have sown at least one pan full.

JOHN WALSH.

GRAPES FOR THE MILLION.—No. V.



HOUSE full of vines is as pretty an object as any lover of garden can have for the enjoyment of himself and friends, and only needs reasonable management to insure very profitable results. When I say reasonable management, I mean that to grow good grapes is not at all a difficult task, and I will endeavour, in as few words as possible, to sketch out a plan of procedure. I shall suppose the intending cultivator has no house, and must therefore build. The first step; then, is to construct

A CHEAP VINERY.

If there is a good wall, a lean-to may soon be put up, and there may be a border outside, and the vines brought in and trained to the rafters. Under the vines a few orchids may be grown. Better still ferns, as the vines will give them shade just when they require

it. But to keep bedding plants or to flower pelargoniums, and other plants that need plenty of light, is a great folly. In fact, wherever it is attempted to mix greenhouse plants with vines, there must be more or less injury done to one or the other; they cannot both prosper in the same house. I am not thinking about forcing, because we are dealing with "grapes for the million," and the million do not force; it is a costly process, and needs a skilful cultivator. We depend, therefore, chiefly on sun heat, but a little help from hot-water pipes, if heating can be afforded, is an advantage. The Paxtonian houses answer admirably for vines, and if you have choice of wall, and can put up a house ten or twelve feet high, a fourteen feet rafter will be the proper thing. The width of the border must be proportioned to the length of the rafter, say for a ten feet rafter a border full in the sun (the house should face south) four feet wide; for a fourteen feet rafter, five or six feet wide. The Paxtonian house can be ordered to measure, and the lights and irons will be sent ready for fixing, with directions, so that the village carpenter can put it together in a brief space of time.

But I prefer a low span-roofed house; and if cheapness and efficiency are aimed at, without regard to ornament, I should advise the adoption of the following measurements:—Sixteen feet wide; brick walls three feet high; height to ridge, eight feet. A border on each side four feet wide would leave an eight feet space in the centre. To economize that space could be so easy a matter that I should say but little about it. Every one to his taste. My taste would be to have one row of large specimen fuchsias in pots standing on clean gravel or concrete, and leave the rest of the space for walking. A few ferns might be accommodated with the fuchsias, and there would be no litter, no crowding, sufficient walking space for enjoyment; and the same treatment would serve for all. As for the construction, I should proceed on the assumption that vines do not need much air. Therefore I should be content to leave apertures in the wall a yard apart, those apertures to be made by leaving out two bricks, or say seven to nine inches square; and at each end of the house, over the door, I should have a triangular shutter fitting closely to the angles of the ridge. During summer I should have all open night and day. In spring and autumn I should open them for a few hours daily, according to the weather, keeping all close during cold weather; and in winter I should stuff some hay or other rubbish into the holes in the wall, or nail a piece of board over both inside and outside. This house ought to be heated with a small boiler at one end, and two courses of 4-inch pipe all round. As we have no intention to force, the fire would not often need to be lighted. But in case of cold, damp weather, when the vines were in flower, I would get up a moderate heat, and at the cost of a few bushels of coke would make sure of my crop. So again, in case of a cold, wet summer, I would give the grapes the benefit of a little heat to ripen them, and good colour and flavour would be ensured. In such a season as 1865, or the season we are now enjoying, I do not suppose I should use the fire at all. In winter it would not be wanted, of course.

A still cheaper method of procedure would be to make the border outside, and dispense with heating apparatus; but this plan would be occasionally attended with the drawback of a poor crop. With the border inside and with command of artificial heat, you may be sure of grapes every season; with no heat, and with outside borders, you would not get a berry in such a season as 1860 was. Outside borders answer better with lean-to houses, because we can have them facing full south; but a span-roofed house must be put to run as nearly as possible north and south, so as to get the sun on all parts of the house during the day. The borders, therefore, face east and west, and have much less sun heat than when a south-looking lean-to has border sloping full in the face of bright Phœbus. Nevertheless, though I state the pros and cons fairly, this would be a good house, and would give fair average returns. It would have the best chance in a high, dry, warm position; in a low, damp, cold district the first plan is greatly to be preferred, that is, inside border and a hot-water service.

The borders would require to be thoroughly well drained to begin with. I will not waste space by telling how to drain them; it is best to leave some things unsaid. The stuff for the border should consist in the main of good turfy loam, with a very plentiful admixture of sandy road drift, broken oyster-shells, broken bones, and clean lime rubbish. I would not use a particle of manure; time enough for that when, after many years' cropping, the vines begin to need a little help. Then a good mulching with fat dung will produce its effect. One of the most prevalent errors in vine-growing is the free use of manure; nearly all the shanking, rust, mildew, and the rest of the plagues are produced by manure; and when all works well, manure only makes large berries, it does not make either flavour or colour. Reserve the fattening foods, then, for times of real need; for the first start and for many years to come, turfy loam, with siliceous and calcareous additions, will make fine canes, and superbly coloured and flavoured grapes.

Let me tell you how to spoil the whole affair. If the border is outside, crop it; if it is inside, put pot plants all over it. In either case you ruin the roots of the vines, and will be writing to us to ask if we can tell you what is the matter. Yes, exhaust the goodness of the border by cropping it with vegetables, or exclude the sunshine from it by smothering it with pot plants, and say no more about grapes for the million; for the fact is, with such treatment you may spend a million, and yet have no grapes.

The most successful grower of grapes in the country is Mr. Meredith, of the Vineyard, Garston, near Liverpool. The wonderful bunches of Black Hamburgs he exhibits are grown in a lean-to house, with outside border raised above the level, and the border consists almost wholly of sandy loam. Nothing could be more simple or more effective.

S. H.

BEDDING GERANIUMS, OLD AND NEW.



IN last month's number I offered a few remarks on geraniums adapted for pot-culture. I now propose to pass quickly in review the varieties best adapted for bedding. Good reasons may be found in plenty to account for the popularity of geraniums. Considered simply as bedding plants, they are certainly the most useful of the class; they are easily kept all winter, they grow well in almost every kind of soil during summer, they flower profusely and continue in perfection for a greater length of time than any other class of bedding plants, and their colours are intensely brilliant and delightfully various. They became famous in the first instance because of the intensity and profusion of their scarlet flowers; but we have them now in all colours except pure blue and pure yellow, and though the first might be desirable, the second is of less consequence, because the calceolaria supplies yellow in several shades, and is the next best, that is to say, next most reliable and profusely-flowering bedding plant, after the geranium. Some of the readers of this may not fully appreciate the remark just made on the great variety of colours to be found amongst geraniums, because everywhere the common opinion respecting these plants is that the only good ones are the scarlets, and that of other colours and shades there are very few indeed, and those few more curious than useful. But the fact is that, within the past few years, the raisers of new varieties have succeeded in effecting numerous improvements, and, to speak the plain truth, the geranium is now quite a different thing from the plant we were accustomed to when we used to call them "scarlet-flowered horseshoes." Nearly all the kinds that were then considered first-rate are now second, third, and fourth-rate—those of most recent introduction being so immensely superior.

Scarlets.—Let us, then, just consider the two points together—diversity of colours, and superior qualities for bedding. To begin with scarlets. We put aside Tom Thumb, Huntsman, Reidii, Hibberd's Pet, Cottage Maid, and several others that only three years ago were considered first-class varieties, and we take instead of them Stella, Cybister, Faust, and Attraction. These are certainly the four best scarlet bedding plants known; they grow with only moderate vigour, they are extremely neat in habit, with dark green horseshoe leaves, and they produce large trusses of flowers of the most brilliant shades of scarlet or scarlet-crimson. Perhaps of the four, Cybister is the best; but, in any extreme case, the ultimate choice must fall upon either Cybister or Stella. The dark foliage of all these varieties has very much to do with the brilliant effect they produce on the ground, because by contrast therewith the strong tones of colour of the flowers come out distinctly. All the scarlet-flowered geraniums that have light-green leaves, such as Tom Thumb, are objectionable, because of the interference of the predominant tone of yellow in the leafage with the purity of the scarlet flowers. Kate Anderson will be one of the most popular of this class.

Rose-pink.—Let us glance at another section—say the rosy-pink class. There are now hundreds of varieties with pink flowers, and a few of them are excellent bedders. Not long since, we were glad of Helen Lindsay, Mrs. Whitty, and some others that surprised us by their colour, but which have proved rather shy in flowering out of doors. For colour, profuse flowering, neat dwarf habit, and hardy constitution, there is no geranium in this section to equal Madame Barré; it is a better colour even than Helen Lindsay, which used to be the richest, though the shyest, in this section. It has the bad quality, however, of shedding its flowers during gales and heavy rains, so that, after a few days' bad weather, beds filled with it look rather poor; but it produces such abundance of flowers, that a few days of sunshine make it right again, and it glows as bright as ever. There is a good old variety in this section that we cannot now do without—it is the well-known Christine. All the breeders have tried their hands at raising a geranium to beat Christine, but none have succeeded yet. It is very faulty, yet very good. Its greatest fault is the immense quantity of seeds it produces; if these are not assiduously removed, the beds acquire a most unsightly appearance, and the plants get exhausted and go out of bloom. The good qualities are, a dwarf habit, most profuse flowering, a good, cheerful colour, and a capability of thriving on almost any kind of soil. After these two, we may find several good varieties with pink flowers—such as Beauté des Suresnes, a truly magnificent kind, which, to tell the truth, is almost too good to plant in beds, and has been hitherto generally grown in exhibition collections as a pot plant. Where the climate is warm, and the soil rather light, however, it may be planted out with perfect safety, and it will make superb masses. Princess Alexandra, in the style of Christine, flowers very profusely, and is, for a time, more attractive than any other in this class; but it makes seeds so fast that, before the season is over, it becomes a nuisance; and, moreover, it is apt, after making a tremendous blaze, to go out of bloom altogether by about the 1st of August. Pink Beauty, Rose Rendatler, Rose Queen, and Minnie are all good bedders, the last two being of a paler shade of colour than Christine.

Purple.—Let us next look at the purples; and, before naming the best, it may be well for those who know Purple Nosegay and Mrs. Vernon to call to mind what are their qualities of growth and bloom. Having done so, look at a fair-sized plant of Amy Hogg when in full bloom, and, by the contrast, measure the advances made in the improvement of geraniums within the past few years. The late Mr. Beaton, who was the most successful breeder of these things in modern times, left us no better legacy than Amy Hogg; for, though it is not equal to Stella or Cybister in the profusion of its flowers, the predominance of blue in the colouring is a march in the right direction, and the flower is a great gain. In this section we must place Lord Palmerston, in whose complexion there is but a trace of blue, yet enough to justify me in classifying it with the purple section.

Crimson.—It is an easy transition to Imperial Crimson, Merri-

mac, Miss Parfitt, and others of what we may call the crimson section. But the moment a grower of these things has seen Black Dwarf, he pronounces all of the Imperial Crimson class to be second-rate; and with Black Dwarf alone he might be content, for its thumping trusses of crimson flowers are magnificent. Another beauty of this class is Glowworm, which has the top petals salmon, and the bottom petals vivid crimson, with just a tinge of purple to make the flower glow with a sort of metallic lustre. Glowworm has just the same fault as Madame Barré—the petals fall much during wind or rain. All the shaded crimson kinds are more or less shy. One, called Magenta, which is most exquisitely coloured, blooms so poorly that I cannot recommend it; a round dozen others, which I should be glad to name because I like them, must be passed over for the same reason. I may here place Mr. W. Paul's Rebecca, the colour of which is red with violet shade. It is one of the finest bedding geraniums known, and one of the best legacies to the British public of the late Mr. Beaton, who was the raiser of it.

Yellow.—The greatest contrast that can be made with geraniums alone is to be accomplished by placing masses of crimson and purple kinds, such as Amy Hogg and Black Dwarf, in juxtaposition with kinds that have a predominance of yellow in their flowers. I may, therefore, appropriately turn now to what may be called the yellow section, and respecting which it must first be said that we are as destitute of a true yellow as we are of a true blue; but the nearest approach to it is Indian Yellow, the colour of which may be described as a mixture of salmon, red, and drab. It is not at all attractive, and its colour, at the best, is very impure; yet, if a line or bed of this, and another line or bed of Amy Hogg, were put side by side, the contrast would be admirable. Indian Yellow would look more yellow, and Amy Hogg would look more blue, by the help of the complementary, than would be the case were they separated far asunder, so as to be viewed irrespective of the influence of contrast. Hibberd's Pet is still valued in some places for the large predominance of orange in the flowers; but it is not here recommended, for it is rather too robust in habit, and the flowers are small. Harry Hieover and Harkaway, both of them very old varieties, are much valued for their orange tints; and, as they are both of very small, wiry habit, they may be used for edgings with effect where an orange tone of red would be appropriate. Orange Nosegay promised to be useful in this class, but I thought it rather a poor thing every time I passed it with other kinds in my collection, which comprises now about 600 kinds.

Salmon.—Again, we make a transition to the salmon-coloured section; and here the best bedder is undoubtedly Jean Valjean. Another superb bedder is Eugenie Mezard, which is also known as Madame Rudersdorff. This is a first-class exhibition geranium, and when grown in pots under glass, the flowers are white, with a beautiful oculate painting of clear salmon flesh. But, when planted in the full sun, the flowers come self-coloured, and a very pleasing shade of salmon. It is first rate for either pots or beds. There are very many bad varieties in this section, such as Kingsbury Pet, etc.,

which it would be waste of space to name. My H. W. Longfellow will be no doubt the finest bedder in this series. The colour is deep salmon, with a shade of fiery red, and the habit dwarf, compact, and free-flowering. St. Fiacre is also fine.

White.—We turn next to the whites, and the first remark required is, that, as bedders, none of them are first rate. Madame Vaucher, White Tom Thumb, White Perfection, and Snowball do not greatly differ in habit and general appearance. In a certain sense they are all good, and the two very best among them are Madame Vaucher and White Perfection. Their great failing is this—if the summer is as bright as we desire it to be, and as geraniums usually require for a free growth and good bloom, the flowers of these varieties lose their purity, and become coloured in various degrees of dirty blue, pale red, blush, and other tones for which I can find no name. In 1864, there was a bed of Madame Vaucher at Battersea Park, which the most experienced of geranium-growers would not have identified until told the name, for the flowers were all of the colour of a washed-out lilac calico, instead of pure white, as they ought always to be. All these geraniums require some amount of shade to preserve the pure white of the flowers, and so long as they do keep pure they are extremely beautiful. There is a good old variety which I still use as a bedder, and which I recommend cultivators to procure and try fairly—it is called *Galanthiflora*; the name is appropriate, for the flowers are as white as any snowdrop; and, where the soil assists it, the flowers are produced abundantly. In many country places *Hendersoni* is the only white geranium at present known. Respecting it, all that need be said is that it is about the worst geranium in cultivation. But *White Perfection*, lately sent out by Messrs. E. G. Henderson and Son, is superb, and will be preferred to Madame Vaucher, wherever it obtains a fair trial.

Red.—There remain a few yet that deserve mention, as, for example, *Lady Middleton*, a rather strong grower, but of excellent habit, the flowers lively cerise red. *Trentham Rose* is so nearly like it that one description serves for both. They are distinct, though very few can see the distinction. *Sheen Rival* is an excellent scarlet. *Herald of Spring* and *Excellent* are two fine varieties, the colour light red.

Of Variegated-leaved Geraniums, the following are unquestionably the best for bedding:—*Alma*, *Flower of Spring*, and *Silver Chain* in the white-leaved section; and *Cloth of Gold*, *Golden Vase*, and *Mrs. Pollock* in the yellow-leaved section. At least a hundred more good ones could be added to the above, but possibly these will suffice for the majority of our readers.

SHIRLEY HIBBERD.

THE MOUTAN, OR TREE PÆONY.



A CORRESPONDENT has asked for some directions for the cultivation of these magnificent plants, and it seems better to deal with the subject at some length than to dispose of it in a small paragraph. I do not suppose it to be needful to say a word respecting their beauty, for that is renowned, and there are folks living who would not mind paying a liberal fee for a sight of a good collection in flower. But they are not inelegant when out of flower, and at any time when their leaves are green they may be classed as ornamental plants, of by no means common-place or uninteresting appearance. Until within the past few years they have been very costly; so much so that it is but a short time since one of the beds of tree pæonies at the Crystal Palace was valued at £1000, and I do not think £250 would be an extravagant valuation for one of the beds of Banksii there which I saw in bloom in the spring of this year. I see in Mr. John Fraser's catalogue plants of Banksii, Papaveracea, and Rosea odorata offered at 5s. each, so the first cost of the plants need not now be an obstacle to their cultivation anywhere. Having grown them many years, and having successfully incorporated them into my "plunging system,"* I trust I shall be enabled to offer a few remarks on the treatment they require, which may be useful to our readers.

MOUTANS IN BEDS.—The moutan pæonies have been very badly treated, and very much misrepresented. They have been put in heat, which soon kills them; they have been grown in fanciful composts, which cause them to grow weakly, become infested with vermin, and produce but few or none of their splendid flowers. They must be treated in a *simple manner*, or they are of no use at all. The first requisite is a stiff soil, abundantly manured, and well drained. They do better planted out in compartments if the climate suits them, but where the climate is unfavourable they can be grown in pots. It must not be supposed that a warm climate is requisite; in fact, a warm climate, *if moist*, is decidedly unfavourable to their well-doing, for it promotes a late growth, and results in imperfectly ripened wood, which the next season starts into growth prematurely, so that the flower buds—if any appear—are liable to be destroyed by frost. In the rather bleak position and the decidedly stiff soil they have at Sydenham, they thrive amazingly. I have seen the beds there completely smothered with their gorgeous flowers, averaging five or six inches each in diameter. They do not, however, need sun so much as most other shrubs; in fact, just such an amount of shade as rhododendrons delight in suits the pæony, and they need shelter also from high winds. If I could pick my place for them, I would choose a western slope on a clay soil, with a belt of evergreens to give shelter from north and east, and a few large trees to give shade from the south, but otherwise open and breezy, and lying

high and dry. Such a slope I would improve by extra drains to carry water away quick to a lower level, and then I would manure liberally before planting. I would never protect the plants with canvas or screens of any kind, unless I wanted to cut flowers for show, in which case I would shade the flowers selected in just the same way as we shade dahlia blossoms.

MOUTANS IN POTS.—In pot culture a few rules must be strictly observed. First pot firm, with good drainage and a fat soil. I always ram the soil into the pots with a rammer, which at the present moment happens to be the knob end of a broken kitchen poker; the rammer in use before that turned up was a short stout piece of the stem of a box-tree, one end of which had been charred till it was round as a ball and as black as soot. My plants remain two years in the same pots without a shift, and they do better than with annual shifting, for in the second year they always flower more freely than the first, which I attribute to the more perfect ripening of the wood. But in the second year we help them with surface manure from the time they begin to grow freely, and we find nothing so good now as Standen's manure laid on the surface of the soil two or three times in the season. If this is not used, a good top dressing of sheep's dung answers admirably, and to be repeated once or twice while they are growing.

It is of the utmost importance that they never taste fire heat. I do not say they cannot be forced, because there are cultivators who can force anything from ginger to a cedar-tree; but I do say, that if they are pushed into growth by the aid of artificial heat in spring, the flowers are likely to fall in the bud; and if they are kept where there is fire heat in winter, they will begin to grow prematurely, and come to grief. My trees remain out of doors all winter in a sheltered place, packed to the top edges of the pots in coal ashes or tan. If the weather is severe we scatter dry hay amongst them, but I have never yet seen a moutan injured by frost. As soon as they begin to grow in spring they are all removed to a breezy Paxtonian house, and are placed on both sides at intervals in front of the ventilators. The advantage of this is to protect the young growth from the destructive spring frosts which are so common on the north side of London, while at the same time the plants have as much air and light as if they were out of doors. From this time they are freely watered, and their growth is rapid. From the unpromising old wood shoots of a foot to eighteen inches in length rise in profusion, each bearing a huge flower at its summit. When the flowers are about half expanded they may be plunged in beds out of doors, and make a splendid display where the plunging system is followed. But I must confess that this season, for the first time, my tree pæonies were very much injured by being put out, for we had miserable weather at the time, damp all day and frost at night; and though they looked beautiful for a time, they refused to open their latest buds, which in the end melted to a pulp and fell ingloriously.

PRUNING is a very simple affair. It will be observed that the flowering shoots spring from the ripest wood, and in fact you may

see all next year's flowering buds on the trees now. Therefore, if you prune carelessly you are likely to prune the bloom away. But the proper way to prune them is just the same as black currants; that is to say, wait till the leaves fall, then cut back all the shoots of this year to about four inches, which secures for blooming the ripest of the wood, and any shoots that are ill placed and spoil the shape of the tree, remove by a clean cut to the base. They mostly grow so upright and orderly that any one can prune them who will first pay a little attention to their mode of growth. Should any of our readers wish for a criterion of a good example of moutan, I should say that a tree of seven years old ought to measure seven to eight feet in diameter when in flower, and present its owner with at least a hundred flowers. When they get to twenty years of age they lose much of their beauty, and had better be destroyed; though possibly, if carefully replanted in rich strong soil, they might renew their youth and beauty. The trees in the open ground need a good annual surface dressing, and sheep's dung is perhaps the best. If they do not have this, a profusion of fine flowers must not be expected.

PROPAGATION.—This is considered a great mystery. Ask all the practicals amongst your acquaintance about it, and you will soon learn that one reason of the high price of moutans is that very few know how to increase them. Yet the process is very simple, and may be described in a few words. In the month of August take up the roots of common border pæonies (herbaceous), and pull them apart into separate finger-like tubers. Prepare from the wood of the season a number of scions of moutans one and a half to two inches in length, those taken from the points of shoots being the best. Graft these into the tubers by cutting the base of the scion in the form of a wedge, and cutting a notch in the crown of the tuber to receive it. Tie carefully and clay them, and then plant them in a warm sheltered place out of doors, in rows one foot apart, the bud of the scion being left just peeping above the ground: or they may be potted in small pots, and put in frames; and in this case it will be best to plunge all the pots to the rim in coal-ashes on a well-drained bottom, and put the lights on only during severe frost, and in spring to help them in their first start.

As to varieties, they are all good; but the following, selected from a collection we saw in bloom some few years ago at Messrs. E. G. Henderson and Co.'s nursery, St. John's Wood, can be recommended as distinct and extremely beautiful:—*Alba plena*, *Arethusa*, *Atroviolacea*, *Carli*, *Carnea plena*, *Cericea purpurea superba*, *Josephine*, *Imperiale*, *Lilacina*, *Muhlembeckii*, *Newmannii*, *Ocellata*, *Papaveracea rubra*, *Prince de Wagram*, *Roseoleus odorata*, *Rubanne de Flandres*, *Savii*, *SchaltheSSI*, and *Victoria alba*. Several new continental varieties have lately been introduced, some of which have flowers eighteen inches in diameter! These, of course, are at present expensive, small plants realizing five guineas each; but in a few years they will be obtainable for a few shillings each.

I think it proper to apologize for writing more than my usual quantity this month, to the exclusion of some excellent papers from

contributors. The fact is, all except the paper on grapes are really replies to correspondents, and it happens this month that the questions demanding attention in this way happen to fall peculiarly within my province and range of practice. S. H.

INTERNATIONAL HORTICULTURAL EXHIBITION AND BOTANICAL CONGRESS.



IN the June issue of the *FLORAL WORLD* we gave a general sketch of these important undertakings. It is now our good fortune to have to report that complete success crowned the efforts of the promoters and the several committees, and that a deep impression has been made upon the public mind in favour of horticultural displays, and of the extension of horticulture as one of the most important of the useful arts. Our space is too limited to allow of anything in the nature of a detailed report, either of the show or the proceedings in Congress, but as we cannot, in justice to our readers, pass the matter by, we shall make a few selections and gatherings of such matters as appear to have not only interest for the present, but a lasting value, leaving some few special subjects to be treated of at length, as opportunities occur. With no more preface, therefore, we now proceed to pick and choose, and trust that what follows will serve in place of a detailed report.

Mr. Salter's Fifty Hardy Variegated Plants comprised subjects better known than the gems from Messrs. Backhouse, but in their way they were equally remarkable for beauty. To give a full list of these would be to reproduce the last few pages of Mr. Salter's catalogue, which anybody can obtain by sending to Hammer-smith, and enclosing a postage-stamp to cover its conveyance; but the following, selected from the fifty, are recommended as requisite in some way or other in every garden: *Arabis alpina* and *A. mollis*, for edgings; *Aubrietia deltoidea*, for the mixed border and for choice rockeries; *Dactylis glomerata*, exquisitely beautiful for edgings. For pot culture: *Arum Italicum*, a more beautiful plant than the well-known and much-favoured *Calla æthiopica*; *Aspidistra elatior*, *Convallaria majalis*, one of the most elegant plants known; it does not flower so freely as the green-leaved Lily of the Valley, but it does flower, and that is something; if it did not we should be compelled to prize it for the delicate veining of the leaves; *Polygonatum multiflorum*, most graceful and attractive; *Sedum Japonica Fabaria*, a very bold and handsome plant, the variegation sulphur-yellow on a pale glaucous green ground; *Sedum Sieboldi*, the variegated form of this old favourite is not much liked by cultivators, yet it has its merits, and is well worth a place in a cool sunny house. For mixed borders and rockeries: *Ajuga reptans*, *Artemisia vulgaris* (*A. argentea* should be thought of here; what a lovely little tree it makes), *Funkia cucullata*, *Japonica*, *ovata*, *undulata*, all fine, the variegation delicate, and the flowers pleasing; *Lilium candidum*, *Pulmonaria sibirica*, a grand plant, quite rivalling some of the most celebrated variegated stove and greenhouse plants; *Tussilago farfara*, *Veronica spicata*. It is hoped the omission of "fol. var." in this enumeration will not lead to any mistakes; it is the *variegated* forms of these plants alone that we have now to do with.

Exotic Ferns.—It may serve as an index of the extent of this glorious exhibition, and be particularly tormenting to many who were sceptical and refused to see it, if we commence this paragraph by saying that the specimens shown in classes for ferns numbered in all no fewer than 404! Not a few of these were tree ferns, many were stove and greenhouse species of great value and wondrous beauty, and the Britishers had all the importance due to them both for their hardiness, variety, and beauty. In the class for twelve stove and greenhouse ferns, the highest post of honour was assigned to Mr. Baines, of Bowden, whose plants were *Dicksonia antarctica*, *Alsophila excelsa*, *Cyathea medullaris*, *Cibotium princeps*, *Gleichenia flabellata*, *Davallia bullata*, *tenuifolia*, and *pyxidata*—the finely-cut fronds of these show well amongst the macrophylla kinds; *Pteris scaberula*, this fern rivals in

elegance any or all that could be reasonably compared with it, and in a cool house grows as freely as chickweed on a sandy bank; *Platyterium grande*, *Cheilanthes elegans*, *Asplenium fœniculatum*, fine for small collections, and indispensable in large ones. In the corresponding class for nurserymen, the only contributors were Mr. B. S. Williams and Mr. Bull. The amateur class for sixes was well filled; there were seven competitors, the first prize was awarded to Mr. G. Young, gardener to W. H. Stone, Esq., Leigh Park. Mr. G. Young's lot were *Dicksonia antarctica*, *Alsophila australis*, *Cyathea dealbata*, *Cyathea excelsa*, *Cyathea australis*, and *Cibotium princeps*. In the corresponding class for nurserymen, Messrs. Veitch and Jackson alone exhibited. In addition to the ferns already named in these classes, the following were shown, and may be booked by the lover of ferns as eminently desirable; they are fully as effective in the conservatory as on the exhibition table, though some of them require considerable space when fully grown: *Cyathea Cooperi*, *C. boconensis*, *C. elegans*, *C. Smithii*, *Gleichenia spelunca*, *G. flabellata*, *G. semivestita*, *G. microphylla*, *Todea pellucida*, *T. africana*, *Blechnum corcovadense*, *B. australe*, *Asplenium bulbiferum*, *A. Veitchianum*, *Gymnogramma Tartarea*, *G. Wettenthaliana*, *G. Peruviana*, *argyrophylla*, *G. chrysophylla*, *Lomaria gibba*, *Adiantum cuneatum*, *A. formosum*, *A. trapeziforme*, *A. capillus veneris*, *A. cardiochlena*, *Polypodium aureum*, *Pteris cretica*, *P. cretica albolineata*, *P. serrulata*, *P. serrulata cristata*, *P. longifolia*, *P. tremula*, *P. argyrea*, *Nephrolepis exaltata*, *N. davallioides*, *Nephrodium molle*, *Woodwardia radicans*, *Onychium lucidum*, *Microlepia strigosa*, *Marattia elegans*, *M. cicutæfolia*, *Drynaria morbillosa*.

New Tender Ferns.—First, Messrs. Backhouse; second, Messrs. Veitch; third, Mr. B. S. Williams. Mr. Bull also exhibited. Cuspicious for beauty amongst these novelties were the following, about which some particulars will be given shortly: *Gleichenia cryptocarpa*, from Chili; *Asplenium resectum*, from the Mauritius; *A. anisophyllum*, from Natal; *Trichomanes fœniculaceum*, from Java; *Asplenium alternans*, from Tibet; *Davallia alpina*, from Borneo; *Lomaria ciliata*, from New Caledonia; *Pteris flabellata ascensionis*, *Polystichum ordinatum*, *Adiantum velutinum*.

Arads, Araliads, and Marantads.—Many superb specimens of valuable species were brought forward in these classes, which belong to the section of plants representing families, and not genera, as the official catalogue places them. As a matter of course, such showy subjects as *Alocasia zebrina* (a coarse plant), *A. Veitchii*, *A. Lowii*, and *A. metallica* were brought forward in plenty. But with them were many less known plants, equally remarkable for noble characters. Messrs. Veitch had the splendid *Dieffenbachia Baraquiniana*, beautifully marked with creamy variegation, the very distinct and beautiful *Aglaonema commutatum variegatum*, the striking *Alocasia gigantea* and *A. longifolia*, with others. Mr. B. S. Williams had a fine example of *Alocasia macrorrhiza variegata*, the noblest of all variegated stove plants; *Dieffenbachias grandis*, *gigantea*, and *sequina picta*; and still more worthy of notice, *Philodendron cannaefolium*, and *P. pertusum*, most striking and peculiar in the bold outlines of their leaves. Madame Legrelle d'Hanis sent a noble group, comprising four *Philodendrons*—namely, *crassipes*, *pinifolium*, *peritum*, and *cannaefolium*; four *Anthuriums*—namely, *Augustinianum*, *leuconeum*, *cordifolium*, and *lucidum*; and *Arisæma serotinum*, and *Pothos crassi nervum* to make up the number. In *Aralias*, Messrs. Veitch and Mr. B. S. Williams were the only competitors. In these collections were fine examples of *A. papyrifera*, *A. Sieboldii*, *A. trifoliatum*, *A. quinquefolia*, *A. punctiloba*, and *A. farinifera*. Also *Oreopanax peltatum*, *O. plantanifolium*, *O. dactyliferum*, and *Tupidanthus calyptratus*. In the class for *Marantads* were many splendid subjects from Messrs. Veitch and Madame d'Hanis, such as *Phrynium maculatum*, and *P. Van den Heckii*, and *Marantas ornata*, *truncata*, *orbifolia*, *pulchella*, *zebrina*, *majestica*, *Veitchii*, *vittata*, *Van den Heckii*, *argyrea*, *striata*, *Porteana*, *regalis*, *fasciata*, *tubispatha*, *Tagoriana*, and others. In the majority of cases, the precision of the markings is not less remarkable than the delicate shades of colour and effective contrast in the leaves of these beautiful plants.

Caladiums.—There were six fine collections in this class, making seventy-two plants in all, a brilliant display of variously coloured leafage. Mr. Goodwin, gardener to A. Wattenbach, Esq., Camberwell, took the first place. Making a survey of the whole seventy-two plants, we find the following species and varieties represented; those most remarkable for colour are marked with an asterisk: *Chantinii*,* *Troubetskoi*, *Wightii*,* *Cannaertii*, *Hæmatostigma*, *Alba punctatissima*, *Brongniartii*,

Pæcile, Regale, Amabile, Belleymeï,* Argyrites,* Bicolor, Bicolor major, Bicolor magnifica,* Bicolor splendens,* Discolor, Houlettii, Lemaireanum, Mirabile, Pictum, Formosum, Schillerianum, Duc de Nassau, Leopoldii, Albo-conspersum, Thelemannii, Williamsii, Frederici, Lemonierii, Hendrickxii, Egregium, Lowii,* Distillatorium, Rubricaulæ.

Anthuriums.—Messrs. Veitch had the bold outlined cordifolium, the stately leuconeurum, and the brilliant flowering scherzerianum; Mr. B. S. Williams had acaule and magnificum; Messrs. A. Henderson and Co. had Augustinianum and grande. These noble plants are as yet but little known and little grown by the lovers of foliage. Such a display as the present is likely to increase the number of their friends.

Begonias.—There has never been a finer lot staged, yet they made a dull group, and their sameness was against them. Intermixed with plants of light, graceful character, they show their fine qualities to much greater advantage than when in groups by themselves. Mr. Smee took first prize. Amongst the most distinct were Madame Allwardt, Helen Uhder, Comte Alfred de Limminghe, President Van den Hecke, Manoel du Silva Briskey, Secrétaire Kegeljan, grandis, Rex, Van Roon, Queen Victoria, and Secrétaire Morren.

Ericas.—Mr. Peed had the first place in the class for ten with superb specimens of *Eximia superba*, *Perspicua nana*, *Florida*, *Mutabilis*, *Devoniana*, *Depressa*, *Ventricosa magnifica*, *Affine*, *Tortuliflora*, *Cavendishi*, the last being especially good in colour. In the class for six, Mr. A. Ingram first. Amongst them there were beautiful examples of *Tricolor Jacksoni*, *Alberti*, *Spenceriana* (a fine growing kind, rather new, and most desirable), *Lindleyana*, *Devoniana*, *Victoria regina*, *Vasiflora*, *Beaumontiæ*. There were six competitors in the class for single specimens—a huge, lant being in each case put up. Mr. Peed took first place with a fine *oblata*.

Amaryllis.—These lighted up the cool side of the orchid tent with gorgeous colouring, and were admirably placed to display their beauties. In the class for twelve, 1st, Messrs. Veitch and Sons; 2nd, Mr. B. S. Williams. The following were the varieties represented; space cannot be afforded for descriptions, but it must be said that they are all good, and the very best hybrids known: *Anderson*, *Enfant chéri*, *Souvenir d'un Ami*, *Goliath*, *Belladonna*, *Fair Helen*, *Queen of the Netherlands*, *Pantheon*, *Madame Goldsmidt*, *Mlle. Rachel*, *Héréditaire*, *Stephenson*, *Robustum*, *Ackermanni pulcherrima*, *Favourite*, *Holfordii*, *Quartermaster*, *Cleopatra*, *Unique*, *Flora*, *Princess Helena*, *Evening Star*, *Exquisita*, *Grandis*, *Black Prince*, *Delicata*, *Formosa*, *Johnsonii psittacina*, *Matilda*, *Splendens*, *Sultana*, *Sweetii*.

Azaleas.—In the eight classes devoted to them there were in all 259 plants shown. The great contest in the trade classes lay between Mr. Turner and Messrs. Veitch, and the first-named exhibitor carried off the highest award for specimens averaging seven to eight feet high and through, finish in training and colouring absolutely perfect. Messrs. Veitch's plants were not far in arrear of Mr. Turner's. The varieties were generally such as have been frequently reported on. Mr. Turner's giants were *Perryana*, *Illustris nova*, *Variegata*, *Sir C. Napier*, *Criterion*, *Barclayana*, *Iveryana*, *Chelsoni*. Messrs. Veitch's second prize eight were *Magnificent*, *Criterion*, *Extrani*, *Juliana*, *Trotteriana*, *Carnea superba*, *Chelsoni*, *Cedo Nulli*. In other collections were examples of *Etoile de Gand*, *Apollo*, remarkably brilliant in colour; *Glory of Sunninghill*, a most beautiful variety; *Gledstanesi*, *Macranth purpurea*, valuable for exhibitions on account of its rich contrast to colours in which there is a tone of orange; *Purpurea*, also fine for rich contrast; *Sir Charles Napier*, *Alba magna*, *Violacea superba*, *Madame A. Verschaffelt*, *President Clayes*, *Duc d'Arenberg*, *Roi Leopold*, *Iveryana* (in nearly all the collections), *Duchess Adelaide de Nassau*, etc.

Roses.—The great trade class for ten pot roses was the scene of special excitement and attraction to rose connoisseurs, and as there were five competitors, and consequently fifty great specimens in this class alone, the general public, swarming in by thousands, enjoyed a feast of roses as one of the prominent features of this great spectacle. The first prize went to Mr. Charles Turner. In the amateur class for six, the first prize went to Mr. Terry, gardener to A. G. Puller, Esq. The open class for six new roses was contested by trade growers only, and the winners were Messrs. W. Paul and Son, and C. Turner. Selecting fourteen of the principal groups in these five classes (omitting, of course, the class for new roses), the following shows the relative degrees of popularity of the varieties named:—Adam, T.,

1; Alba rosea, T., 4; Alphonse Belin, H. P., 1; Anna Alexieff, H. P., 3; Anna de Diesbach, H. P., 1; August Mie, H. P., 1; Baron A. de Rothschild, H. P., 3; Baronne Prevost, H. P., 4; Beauty of Waltham, H. P., 3; Belle Normandie, H. P., 1; Bernard Palissy, H. P., 2; Caroline de Sansal, H. P., 2; Catherine Guillot, B. P., 1; Celine Forestier, N., 3; Charles Lawson, H. C., 7; Charles Lefebvre, H. P., 3; Chenedole, H. C., 2; Comtesse de Brossard, T., 1; Comtesse de Chabillant, H. P., 2; Devoniensis, T., 2; Duchesse de Caylus, H. P., 1; Duchesse de Morny, H. P., 1; Elizabeth Vigneron, H. P., 2; Francois Lacharme, H. P., 1; General Jacqueminot, H. P., 5; Gloire de Chatillon, H. P., 1; Gloire de Dijon, T., 1; Jean Goujon, H. P., 1; John Hopper, H. P., 5; Jules Margottin, H. P., 1; Juno, H. C., 2; Kate Hausburg, H. P., 1; La Brillante, H. P., 1; La Reine, H. P., 1; Lælia, H. P., 2; L'Eblouissante, H. P., 1; Leopold Hausburg, H. P., 1; Le Rhone, H. P., 1; Lord Clyde, H. P., 1; Louise Darzins, H. P., 1; Louise Odier, H. P., 1; Madame A. de Rougemont, H. P., 3; Madame Boll, H. P., 1; Madame Boutin, H. P., 1; Madame Caillat, H. P., 1; Madame Cambaceres, H. P., 1; Madame Charles Wood, H. P., 1; Madame Clemence Joigneaux, H. P., 1; Madame Damaizin, H. P., 2; Madame Derreux Douville, H. P., 2; Madame de St. Joseph, T., 3; Madame Falcot, T., 1; Madame Julie Daran, H. P., 2; Madame Victor Verdier, H. P., 2; Madame Vidot, H. P., 1; Madame Villermoz, T., 5; Michel Bonnet, B. P., 1; Modele de Perfection, H. P., 1; Narcisse, N., 1; Niphotos, T., 1; Olivier Delhomme, H. P., 2; Paul de la Meillerez, H. P., 1; Paul Perras, H. C., 3; Paul Ricaut, H. C., 4; Pierre Notting, H. P., 2; President, T., 4; Prince Camille de Rohan, H. P., 1; Princess Mary of Cambridge, H. P., 1; * Professor Koch, H. P., 2; Rev. H. Dombtrain, B. P., 2; Reynolds Hole, H. P., 1; Senateur Vaisse, H. P., 1; Souvenir d'Elise Vardon, T., 1; Souvenir de Malmaison, B. P., 2; Souvenir de St. Bernardin de St. Pierre, H. P., 1; Souvenir d'un Ami, T., 6; Vicomtesse de Gazes, T., 3; Vicomte Vigier, H. P., 4; Victor Verdier, H. P., 7; Xavier Olibo, H. P., 1.

New Roses.—In the class for six, Mr. William Paul first with Kate Hansberg, Madame de Stella, Pierre Notting, Alpaide de Rotalier, Paul de la Meillerez, and Elizabeth Vigneron; Messrs. Paul and Son, second with Achilles Gonod, Alpaide de Rotalier, Princess Mary of Cambridge, Lord Clyde, Madame Victor Verdier, and Madame de Stella; Mr. Charles Turner third with Madame Victor Verdier, Alpaide de Rotalier, Charles Wood, Marechal Souchet (Damaizin), Monsieur Boncenne and T. Jaune d'Or. Messrs. Lane and Son showed Laurent Descours, Jean Goujon, Pierre Notting, Baronne Gonella, Lord Clyde, and Princess of Wales.

Pelargoniums.—The great trade class for twelve show pelargoniums was contested by three exhibitors whose positions were—first, Mr. Turner; second, Mr. John Fraser; third, Messrs. Dobson and Sons. Mr. Turner's plants were Fairest of the Fair, Royal Albert, Lady Canning, The Rival, Beacon, Pericles, Fair Rosamond, L. Towers, Rosa Ronheur, Rose Celestial, Mr. Fraser's were Sir Colin Campbell, Candidate, Lilacina, Pericles, Peacock, Pizarro, Desdemona, Ariel, Norma, Rose Celestial, Empress Eugenie. Messrs. Dobson's varieties were Majestic, Distinction, Desdemona, Leotard, Sir Colin Campbell, General, Favourite, Mdle. Patti, Maid of Honour, Attraction, Caractacus, Queen of England. In the amateurs' class for ten, Mr. Bailey, gardener to J. J. Drake, Esq., Amersham, Bucks, was the only exhibitor, and took the first prize with a group of plants, that were equally wonderful for size, even training, profusion of bloom, and freshness. Mr. Bailey's huge ten were Ariel, Mulberry, The Belle, Spotted Gem, Lady Canning, Desdemona, Etna, Sir Colin Campbell, Sanspariel, Pericles. The amateurs' class for six was entered by only four competitors, yet the plants were of such size and beauty that they went a long way towards filling up the two grand banks in the centre block. Mr. J. Ward, gardener to F. G. Wilkins, Esq., first with Peacock, Fair Rosamond, Etna, Viola, Osiris, Fairest of the Fair. Second, Mr. James Weir, gardener to Mrs. Hodgson, The Elms, Hampstead, with The Belle, Sir Colin Campbell, Lord Clyde, Prince of Prussia, Virginia, Rose Celestial. Third, Mr. James Shrimpton, gardener to A. J. Doxat, Esq., Putney Heath, with Gaspard, Monarch, Mdle. Patti, Sylph, Peacock, Rose Celestial. Fourth, Mr. J. Wiggins, gardener to W. Beck, Esq., Isleworth, with Royalty, Princess of Denmark, President, Empress Eugenie, Maid of Honour. *Fancy Pelargoniums* were shown in only two classes, and there were only about thirty plants in all, yet they made a great show, and tended in a material degree to tone down and refine the strong colouring of the other classes. In the trade class for six, Mr. John Fraser first with

Celestial, Clara Novello, Delicatum, Roi des Fantaises, Cloth of Silver, Lady Craven. Second, Mr. Turner, with Clemathe, Roi des Fantaises, Ellen Beck, Delicatum, Evening Star, Lady Craven, Godfrey Turner, Delicatum. Second, Mr. James Weir, with Mrs. Stewart Hodgson, Carminatum, Evening Star, Attraction, Celestial, Madame Sontag. Mr. Donald, gardener to J. G. Barclay, Esq., Leyton, had Queen of the Valley, Ellen Beck, Rosabella, Maroon, Clara Novello, Lady Craven. There was an open class for single specimens: Mr. Bailey first with an extraordinary plant of Rose Celestial; Mr. Turner second with Boule de Feu. Mr. Fraser sent a fine plant of Sylph.

Zonale Geraniums.—For the first time in the history of exhibitions, these showy and interesting subjects were conspicuously abundant, and had justice done them. There were five classes for zonales, nosegays, and variegates, and the plants contributed numbered 122, to which may be added about 250 (or more) in collections apart from the schedule, making about 400 in all. It is likely, indeed, that there were over 500 plants in the show, and they were all needed, considering the vast spaces to be coloured. In the trade class for twelve zonales, Mr. John Fraser, of Lea Bridge Road, took first place with Monsieur Barré, Beaute de Parterre, The Clipper, Madame Werle, Mons. G. Natchet, Rose Rendatler, Lord of the Isles, Emile Licaud, Herald of Spring, Virgo Marie, Eugene Mozzard, Malakoff. Second, Mr. Catlin, gardener to Mr. Lermite, Finchley, with Tintoret, Scarlet Globe, Rubens, Eugénie Mezdard, Vivid, St. Fiacre, Lord of the Isles, Stoddart, Evening Star, Madame Vaucher, Admiration, Mons. Tisserand. Third, Mr. Turner, with Dr. Lindley, Virgo Marie, Madame Vaucher, St. Fiacre, Souvenir de Basseville, Attraction, Victor de Peubla, Enamel, Amelina Grisau, Monsieur Martin, Magnet, Princess Matilde. In other collections were examples of Boule de Neige, Bonnie Dundee, Marquis de St. Innocent, Rosamond, Effie, Fanny, Eva, Provost, Scarlet Globe, Cerise Unique, Tom Thumb, Lady Middleton, Cottage Maid, Queen of Roses, Cloth of Gold, Senator, Commander-in-Chief, Boule de Feu, Christine, Countess of Bective, Conqueror of Europe, Lord Palmerston, etc. In the class for twelve nosegays there were but two competitors—namely, Mr. W. Paul and Mr. Salter. Mr. Paul's varieties were Wood Nymph, Alexandra, Dr. Hogg, Crimson Queen, Waltham Seedling, Duchess, Orange Nougay, Cybister, Multiflora, Scarlet Dwarf, Amy Hogg, Tiara. There were seven fine collections of variegated geraniums in the open class for twelve plants. Messrs. E. G. Henderson and Son, of St. John's Wood, took the first position with a glorious batch of tricolors. In these collections were brilliant examples of Argus, Alma, Annie, Burning Bush, Cloth of Gold, Golden Chain, Electric, Gold Pheasant, Golden Vase, Glowworm, Golden Tom Thumb, Flora's Gem, James Sherman, Mrs. Pollock, Fontainebleau, Yellow Belt, Variegated Nougay, Mrs. Benyon, Sunset, Sirius, Mirth, Pride of Summer, Princess of Wales, Flower of Spring, Man of Kent, Variegated Tom Thumb, Rainbow, The Hon. Mrs. Mildmay, The Countess, Bird of Paradise, Brilliant, Countess of Warwick, Silver Chain, Queen of Queens, Rosette, Meteor, Little Beauty, Sophia Cusack, Italia Unita, Lady Cullum, Queen of the Fairies, Luna, etc.

Grapes were a thoroughly satisfactory exhibition, and afforded the principal entertainment in the fruit department to practical cultivators. Mr. Bannerman, gardener to Lord Bagot, took first place in the class for five kinds with splendid samples of Chasselas Musqué, just perfect in ripeness, Golden Hamburgh, Black Hamburgh, Black Teneriffe, Black Prince. Mr. Allport, gardener to H. Acroyd, Esq., Doddington Park, second, with Black Hamburgh, Muscat Hamburgh, Black Frontignan, West's St. Peter's, Ingram's Prolific Muscat. In the class for six bunches, Mr. Hill, first, with Black Prince—the bunches symmetrical and in perfection of colour. There was an enormous competition in the class for three bunches of Black Hamburgh, and a splendid show was made by the fifty-one bunches that challenged the scrutiny of the judges. Mr. Allport had the good fortune to be placed first, Mr. Charles Turner second. Three bunches of any black kind with Muscat flavour: first, Mr. Allport, with Black Frontignan, beautifully coloured; second, Mr. Miller, gardener to Lord Foley, with the same; third, Mr. Fowler, of Castle Kennedy, with Muscat Hamburgh. Three bunches not having Muscat flavour: first, Mr. Hill, with Black Prince; second, Mr. Allport, with West's St. Peter's; third, Mr. Cruickshank, gardener to W. Jones Loyd, Esq., with Black Prince. The best Muscat of Alexandria came from Mr. Turner; second, Mr. Fowler. White grapes having Muscat flavour: first, Mr. Standish, with

Muscat Troveren, a very prolific grape of fine quality, and well adapted for forcing ; second, Mr. Fowler, with Chasselas Musqué. White grapes not having Muscat flavour : first, Mr. Osborn, with Buckland Sweetwater, of a beautiful amber colour ; second, Mr. Fowler, with Golden Hamburg. Single bunch of black : first, Mr. Allport, with a splendid bunch of Black Hamburg. Single bunch of white : first, Mr. Turner, with Muscat of Alexandria ; second, Mr. Osborn, with Buckland Sweetwater. In this class, Chasselas Musqué, Golden Hamburg, Foster's Seedling, and Muscat Troveren were shown. Four vines in pots : first, Messrs. H. Lane and Son, with superb examples of Alicante, Buckland Sweetwater, Foster's Seedling, and Frankenthal. Two vines in pots : first, Mr. Record, gardener to Colonel Lloyd, with Buckland Sweetwater and Royal Muscadine, the plants only a year old, trained to iron rods, from which the bunches hung. This is a neat way of training pot vines, especially if there are long and strong canes to deal with.

BOTANICAL CONGRESS.

This was held in the first instance in the Raphael Room of the South Kensington Museum, and afterwards in the Sheepshanks Gallery. M. de Candolle, of Geneva, presided. Papers were read by the following gentlemen :—Mr. James Anderson, of Glasgow ; M. Baumann, Ghent ; M. Bommer, Ghent ; M. Bossin, Paris ; Mr. W. Bull, London ; Mr. E. Carroll, Dublin ; Professor Caspary, Königsberg ; Major Trevor Clarke, Daventry ; Mr. B. Clarke, London ; Mr. W. Earley, Digswell ; Professor Gæppert, Breslau ; Dr. Hidelbrand, Bonn ; Mr. Shirley Hibberd, London ; Mr. J. E. Howard, London ; Mr. Howlett, Whitwell ; M. Van Hulle, Ghent ; Professor Karl Koch, Berlin ; Professor Kickx, Ghent ; M. Krelage, Haarlem ; M. Lahaye, Paris ; Professor Lecoq, Clermont-Ferrand ; M. Mas, Bourg ; Dr. Masters, London ; Dr. D. Moore, Dublin ; Mr. A. G. More, Dublin ; Professor Morren, Liege ; Dr. F. Mueller, Melbourne ; Professor Parlatore, Florence ; M. Pyuaert, Ghent ; Professor Reichenbach, Hamburg ; Mr. Rivers, Sawbridgeworth ; Dr. Schulz Schulzenstein, Berlin ; Dr. Schulz Bipontinus, Deiderheim ; Ph. F. Von Siebold, Leyden ; Mr. W. G. Smith, London ; Sig. Triana, Paris ; Mr. Robert Warner, Chelmsford ; Mr. Hermann Wendland, Herrenhausen ; Mr. Tuffen West, London ; Dr. Wight, Reading.

The President's Address was devoted to the consideration, 1st, of the advantages of Horticulture to Botany ; 2nd, of the advantages of Botany to Horticulture ; and 3rd, the beneficial effects of the association of Botany with Horticulture.

COOL VINERY ORCHIDS.

(Written for the Botanical Congress by ROBERT WARNER, Bloomfield.)



It is now about ten years since I bought several lots of imported *Lycaste Skinneri*. They were placed in a cucumber house, that being the only hothouse I then had. They began to push out young shoots ; and soon after this an old orchid grower called, and when he had seen them he remarked, "Ah ! they look as though they meant growing well, but in three years not a bit will be left ; no one can keep them long."

I immediately concluded that if they did not live long in great heat, it could not be right to continue the old plan. They were removed into a vinery where the vines were young and thin, considerable quantities of water were given frequently to their roots, and to the surprise of all they flourished remarkably well, and continued to increase and flower, until about two years since the late Dr. Lindley pronounced his opinion that longer and broader leaves and finer flowers had never before been seen in England.

In an evil hour for them they were divided, and not having so much attention paid to them as formerly, from my collection having become much more extensive, they felt the effect much, but are now recovering, and will soon be as strong as ever.

This was one of the first, if not the very first, successful experiment in growing

orchids of this species cooler than under the ordinary treatment. The following extract will show the opinion of a competent judge who inspected them :—

"In one division were gathered what Mr. Warner more especially calls his 'cool vinery orchids.' This is a low span-roofed house like the rest, covered with vines bearing a capital crop of grapes, and with the leaves so trained as just to screen the plants without the use of blinds. It has a fixed roof, with a few side ventilators ; and the rule adopted, as we were told, is 40° minimum in winter, and in summer as much natural heat as the season affords, with ventilation. In this house *Lycaste Skinneri* was revelling, its leaves a yard long ; *Odontogloss* had formed pseudobulbs half as large again as those of imported plants ; *Arpophyllum* were in sturdy vigour ; and *Pleione*s, which had been flowering some time since, presented a perfect picture of healthy foliage."

After my first year's experience with *Lycaste Skinneri*, other *Lycastes* were tried, and did equally well ; also *Odontoglossum grande*, *pulchellum*, etc., next *Arpophyllum*, and lastly *Pleione lagenaria* and various others, including *Cattleyas*. All did well under the shade of the vines in summer, but I could not recommend *Cattleyas* to remain during winter at the same low temperature which is sufficient for *Odontoglossums* and *Lycastes*.

It is not, however, desirable at the present time to describe too minutely the treatment of what are now called cool orchids. Suffice it to say, that in my opinion there are very few orchids but feel the beneficial effects of warm fresh air and the sun's rays, especially if the latter are made to pass through grape leaves. This remark is chiefly intended to apply to their growing season.

Temperature in winter, 45° to 50° Fahr., sometimes lower, if frost is severe, but never below 40°, even at night. Summer temperature varies according to the weather outside. Plenty of fresh air is admitted when the days are fine and warm, entering by front sashes through perforated zinc, and passing directly over the foliage of the orchids.

As a rule, artificial heat is dispensed with on warm spring, summer, and autumn days ; but at these seasons, if the weather is cloudy or cold, a little fire-heat is given to dry up the moisture occasioned by watering the plants. The annual value of the grapes usually amounts to half the cost of erecting the house.

Thus many orchids may be grown well, and at little cost, for two different crops are produced out of one simple house, the one being beautiful flowers to please the eye in the winter and spring months, and the other such fruit as no one would refuse to partake of in the early autumn.

PET PLANTS—THE SOUTHERNWOOD.



THE Southernwood (*Artemisia abrotanum*) bears the names of Lad's-love, Old Man, *cum multis aliis*. There is a homely charm about this tiny bush which endears it to every one, and its various names have been household words among rich and poor throughout Christendom for centuries. From its merits alone it has kept its ground against all comers. Being a native of the south of Europe, it has travelled northwards, or rather its sweetness has caused it to be carried to every district, hall, and cottage in town and country. You see it in the neat patch of mixed flower garden in front of the labourer's cottage, and the toy garden in the crowded town has a hapless bush of ill-used southernwood, struggling with soot and sunshine to keep a green leaf in view of the country-bred matron, who despairs of seeing her native place again, but dwells upon the ideal beauty of wold and lea as she looks upon this quaint old-fashioned pet. In some parts of Scotland it is usual to carry a nosegay to church, and the venerable spinster may be seen with the Book in hand by way of foundation, and the snow-white pocket handkerchief neatly folded over that, and the sprig of southernwood, fresh gathered, on the top, with more or less of other garden gear, as the season of the year and state of the garden will admit. Southernwood, from its sweet scent and feathery foliage, is admirably adapted for setting off gay flowers to advantage when used as a back to a nosegay, and for more than two-thirds of the year this supply may be depended upon. I should be glad to know how the plant came to be called *Ouveringie* in Scotland.

If we compare the business habits of this fragrant feathery bush, and the long signal service it renders, we shall see the advantage it has over many of the other denizens of the flower garden. The myrtle is infinitely its superior; but the myrtle, though sweet and beautiful, is tender, and must be housed to keep it alive in any of the midland and northern counties. The rose, that universal favourite, is hardy in habit and gorgeous in flower, and not only deliciously sweet-scented, but having the property of retaining that sweetness for years among the dry petals that adorned its head in the hey-day of its beauty; but for many a day the rose plant is without a leaf, and eke without a flower, for it is not like Tom Moore's "silvery almond-flower, that blooms on a leafless bough," and the leafless twigs of the rose, moreover, have an angry look about them, and are not fit to be touched, being armed with prickles to irritate, but by no means adapted to please. How different from drawing the hand over the green feathery head of the southernwood for the fragrance of its homely perfume!

The first order that I got in my first situation in England was an order from my noble employer to propagate this plant; and when I was taken round the garden to see it, I could not help complimenting her ladyship on the fine specimens of southernwood that had got prominent places therein. In the race after rare plants young men frequently despise plants of merit, merely because they are common. Easily propagated by cuttings, a stock of southernwood may very soon be got up; and if there be any gay flowers to back up, this fine green mantle thrown around them will be found very useful, for there is often a terrible baldness and want of foliage to be seen in gardens gay with masses of brightly coloured flowers.

There is a species of gardening which, for want of any definite term to express it, I may call toy gardening. It has nothing to do with order, or even with common sense, for the plants are grown, or rather exist, by innate force; delved up in the middle of summer, and transplanted when in flower, they eventually recover, and biding their time bloom in some out-of-the-way nook, and are all the better for the old stone wall or overhanging bush that seems to be smothering them; any plant requiring good sunlight, air, or attention, could not hold out against the odds for a fortnight. In a densely-populated place, the prowling of cats at night would break down anything tender or herbaceous, but the stiff shrubby style of southernwood fits it for such toy gardening. In a flower-pot the plant looks very well, and in a box by a window among other plants the fair foliage and homely fragrance of this old pet are not to be despised.—ALEX. FORSYTH, in *Gardeners' Chronicle*.

NELUMBIUMS.—The *Nelumbium speciosum*, as cultivated in England, is generally lost after the first or second year. Perhaps this is more owing to the manner in which it is treated than to any delicacy in the plant. It is generally planted in large pots or tubs, and the water is renewed from the top, while that at bottom—the most important as it is where the principal roots are—is never changed, and, in consequence, becomes putrid, and the roots rot; for there is no plant will long bear putrid water at its roots. In its native country, and in Italy, it will flourish in very small ponds; but the water thus in the open air, though stagnant, is not putrid. Let the pots or tubs, then, have a plug at the bottom; at nightfall, every third or fourth day, let the water be drawn off, and the plant left for an hour or so to get rid of all the water. Then close the plug, and pour on the top of the pot fresh water, tepid, or such as has been exposed to the sun during the day. In winter, perhaps the best way of preserving them would be to let the water drain entirely off, and place the pots in any dark part of the greenhouse.

AMARYLLIS.—After all that has been written on the subject of Amaryllis, the culture may be summed up in a few words. The soil should contain plenty of fibre, the best staple being turf from a loamy pasture that has been laid up in ridges twelve months or more. A fourth part of rotten dung and a fourth part of silver sand, added to a given bulk of this loam, and well incorporated, will be the best possible compost. It is murder to pot amaryllis bulbs in light shambly stuff with no fibre in it. Pot with half the bulb above the surface, plunge in a tan bed or on a moist surface over a tank, and the blooms will rise at once. After the bloom is over, encourage a vigorous leaf growth in a warm moist atmosphere till the leaves begin to wither, and then lay the pots on their sides to ripen the bulbs.

NEW PLANTS.

POLYCHILLOS CORNU-CERVI, *Stag's-horn Polychilos* (*Bot. Mag.*, t. 5570).—Orchideæ. A scarce and interesting, though scarcely beautiful orchid, introduced from Moulmein in 1864, by the Rev. C. S. P. Parish. If grown in the Indian house, it flowers freely in the summer months, four or five flowers on a scape being open at the same time. It is an epiphyte, with the habit of *Phalænopsis*, the leaves leathery and oblong, the sepals and petals nearly equal in length, yellowish-green barred with reddish brown; lip small and whitish.

HABRANTHUS FULGENS, *the Brilliant Habranthus* (*L'Illust. Hort.*, t. 478).—Amaryllidaceæ. This fine species was introduced by Messrs. Backhouse and Son, of York; it has glaucous leaves, and produces an umbel of seven (or more) flowers, the segments of which are rather narrow, the colour scarlet, with a beautiful central star of six rays, of a pale yellow colour. It will thrive in a greenhouse, if grown in a rich, firm, loamy soil, and requires, when the growing season is over, a term of complete rest.

AZALEA INDICA REINE DES PAYS-BAS (*L'Illust. Hort.*, t. 479).—Ericaceæ. A beautiful variety, with medium-sized flowers, which are richly-spotted bright red on a bluish ground.

DENDROBIUM DIXANTHUM, *Two-coloured Dendrobe* (*L'Illust. Hort.*, t. 480).—

Orchideæ. A beautiful species, from Moulmein; sepals and petals nearly the same size; the lip broadly elliptical, the colours yellow and orange, with a few thin bars of red on the lip.

OSBECKIA RUBICUNDA, *the Rubicund Osbeckia* (*Gard. Chron.* 1866, p. 562).—Melastomaceæ. A handsome undershrub, native of Ceylon, introduced by Messrs. Veitch. It is clothed with bristly hairs, and has oblong ovate leaves. The flowers are terminal, the calyx cup-shaped, corolla two inches across, of five roundish deep purple petals, anthers bright yellow. In appearance it resembles *Pleroma*, which is a great recommendation of it to cultivators.

COMPARETTIA COCCINEA, *Red-flowered Comparettia* (*L'Illust. Hort.*, t. 472).—Orchideæ. A beautiful orchid, of small growth, native of Brazil. It produces neat elongated pseudo-bulbs, and neat lanceolate leaves, deep green on the upper side and purplish beneath. The flowers most elegantly disposed in six to ten on a spike; the sepals small, and buff-coloured, the lip largely developed, as a bi-clavate banner;



COMPARETTIA COCCINEA.

the colour lively red; behind it a long spur, which gives the flower a very insect-like aspect.



POLYCHILLOS CORNU-CERVI.

THE GARDEN GUIDE FOR JULY.

FLOWERS OF THE MONTH.—*Greenhouse* : Zonale and large-flowered pelargoniums, globe amaranths, cockscombs, balsams, herbaceous calceolarias, and fuchsias, are now in their prime ; also *Bossiaea inophylla*, *microphylla*, and *scolopendrium* ; *Septas umbella*, *Abronia mellifera*, *Senecio elegans*, and *cineraroides* ; *Nymphæa biradiata*, *Acmadenia tetragonia*, *Nivenia spathulata*, and *lagopus* ; *Mirbelia dilitata*, *Acronychia Cunninghamii*, *Adenandra fragrans*, *Adesmia viscosa*, *Actinotus helianthus*, *Mimulus roseus*, *Sempervivum arboreum*, *cæspitosum*, and *tortuosum*.—*Ericas* : *Hibbertiana*, *Albida incana*, *Blandfordiana*, *conspicua*, *depressa*, *exurgens*, *fastigiata*, *inflata*, *Juliana*, *Monsoniana*, *palustris*, *Parmentieriana rosea*, *pulverulenta*, *Sainsburyana*, *speciosa*, *splendens*, *Humea*, *Ventricosa hirsuta*, *tumida*, *varia*, *jasminiflora rubra*, *gemmafera*, *thymifolia*.—*Orchids* : *Epidendrum alatum majus*, *E. maculatum grandiflorum*, *E. phæniceum*, *E. verrucosum*, *Calanthe masuca grandiflora*, *Arides affine*, *Æ. quinquevulnerum*, *Acineta Barkerii*, *Dendrochilum filiforme*, *Mormodes citrinum*, *M. luxatum*, *Angræcum caudatum*, *Anguloa Clowesii macrantha*, *Bolbophyllum Henshalli*, *Warræa tricolor*, *Vanda tricolor*, *Stanhopea aurea*, *S. Devonensis*, *Cattleya amabilis*, *C. candida* and *superba*, *C. crispa*, *crispa superba*, *C. labiata picta*, *C. M'Morlandii*, etc., *C. Schilleriana*, *violacea*, *Dendrobium alba sanguineum*, *D. sanguinolentum*, *D. taurinum* and *formosum*, *Cœlogyne Lowii*, *Cycnoches barbatum*, *Oncidium divaricatum*, *O. papilio majus*, etc.—*Garden* : *Viola cornuta* and *lutea* ; *Oenothera Fraseri*, *Lamarkiana*, *speciosa*, *riparia*, *serotina*, and others ; *Symphitum asperinum* and *Kermesima* ; *Armeria formosa*, *Platycodon grandiflorum*, *Gypsophila Steveni*, *Chelone barbata*, *Verbascum lagurus*, *Alstræmeria aurea*, *Phyteuma Hispanica*, *Campanula garganica*, *carpatica*, *rotundifolia*, and others ; *Sanguisorba Canadensis*, *Lythrum roseum superbum*, *Arenaria cæspitosa*, *Myosotis alpestris*, *Morina longifolia*, *Gentiana cruciata*, *Achillea ptarmica*, *Malva Morenii*, *Helenium pumilum*, *Papaver alpinum*, *Epilobium angustifolium*, *strictum*, *Saponaria cæspitosa*, *Hedysarum splendens*.

GARDEN WORK.

Kitchen Garden.—Plant the main crop of celery in well-manured trenches. Plant also, from seed-beds, cabbage of all kinds, broccoli, savoys, borecole, etc., in showery weather. Hoe between potatoes, give plenty of water to ridge cucumbers and marrows. Cut down artichokes, top-runners, and keep them well staked. Sow the last lot of runners, French beans, and peas for a late supply. Sow also cauliflowers, spinach, lettuce, turnip-radish, turnips, onions, cabbage, parsley, endive, and cucumbers, for fruiting under glass till Christmas.

Fruit Garden.—Strawberries struck in pots may now be shifted or turned out. Beds should be made now to bear abundantly next year. Bud stone-fruit trees ; thin out weak spray on bush fruits, and foreright shoots on wall-trees. Rub off useless shoots on vines. Thin all fruit of which fine berries are required. A powerful engine, frequently used among fruit-trees now, will do them much good.

Flower Garden.—The last lot of pomponé chrysanthemums should be struck under hand-glasses for the window and greenhouse. Train out and disbud dahlias, strike scarlet geraniums, in the full sun, to be potted singly, as soon as rooted ; plant chrysanthemums in the borders, and stake them at once. Layer pinks, carnations, and picotees. Sow a few annuals to give bloom at the end of the season.

Greenhouse and Stove.—Pelargoniums newly cut down must be kept rather dry till they break. Shift greenhouse plants required to bloom late, and stop to promote a bushy habit. Cinerarias should have good culture. Camellias may have small shifts. Give plenty of liquid manure to vines swelling their fruit, and keep the bunches shaded with a few leaves, by tying the laterals over, where necessary.

NEWS OF THE MONTH.

UNITED HORTICULTURAL SOCIETY, JUNE 5TH.—The chair was occupied by Mr. Shirley Hibberd, one of the Vice-Presidents. Amongst the various subjects exhibited were the following:—From Mr. Groom, of Ipswich, three varieties of tricolor geraniums, the best being Miss Turner, a richly-coloured leaf in the style of Mrs. Pollock, but with less green, a fine bold zone, and less tendency to green in the margin. The flowers are rather loose, and light red, it is of close compact habit, and apparently a good grower. Mr. Fry, of Manor Nursery, Lee, Kent, exhibited a fuchsia named Artistic, the habit excellent. The flower has finely recurved sepals of a bright coral-red colour, and a rather straight purple corolla. Mr. Howard, gardener to J. Brand, Esq., Balham, put up a large and beautiful collection of varieties of *Cattleya Mossiæ*. Mr. Walker, of the Clapton Nursery, sent *Erica longiflora*, a fine old plant with bold racemes of long-tubed pale yellow flowers. From the same came *Erica ventricosa grandiflora*, the best of the *ventricosas*; the flowers are large and elegant, the colour a soft shade of rose-red. Mr. Hibberd exhibited a collection of plants, comprising a large collection of seedling zonale geraniums in flower, and some miscellaneous subjects. The zonales were described as showing a fair average of results in hybridizing with first-class kinds; they were all in a certain sense good as decorative plants, and were such as the exhibitor used largely to make pyramids of plunged plants out of doors, the beauty of which far exceeded that of any ordinary bedding effects, as the plants, varying from one to three feet high, and of all colours—from pure white and rich rose to all shades of crimson and scarlet—could be grouped in beds of cocoa-nut fibre, so as to form pyramids rising four or five feet, and thence down to the ground line rich with colour. Attention was called to two plants in particular: one of these is called Mrs. Spencer; it has a fine bold globular truss, crowded with large flowers of great substance, the top petals meeting the edges of the side petals, but not overlapping. The colour is clear flesh, shading to clear lively salmon-red, with salmon-red veins. Another, called Rose of Allandale, has large flowers of the Beauté du Suresne type. Mr. Hibberd had exhibited last year several seedlings with flowers containing six and seven petals each; he now presented one with eight petals, all of good breadth, and laid over each other, flat and imbricated, and forming a really beautiful flower, quite different to the chaffy appearance of the recently introduced double varieties from the Continent. With these came *Pernettya speciosa*, a very elegant and compact heath-like shrub, completely smothered with pretty white heath-like flowers. This was described as superior to *P. mucronata*, which was commonly in cultivation, as neater in habit, forming a handsome specimen equal in beauty to any white-flowered heath, and bearing when the flowers were over abundance of red berries. *Equisetum sylvaticum*, extravagantly elegant and delicately coloured, a rather scarce but easily grown hardy plant, a native of Britain. *Athyrium Filix fœmina grandiceps*, one of the most beautiful varieties of Lady Fern. This far surpasses *crispa* in its parsley-like denseness of growth and elegant “crisped” or “curled” habit. *Raphanus caudatus* in three stages of growth. One of the plants was from a batch sown at the end of February, and kept under glass till the middle of April, when they were plunged in an open border. They had been shifted as they required it from thumb-pots to 7-inch pots, and had been allowed to grow as they pleased, having a rich light soil, and plenty of water. They were quite healthy and strong, with large dark green leaves, and purple pods about a foot long, which were still growing, and would probably soon touch the edges of the pots, the stems bearing them being about two feet from the pot. Another batch had been sown at the same time, and grown in the same way, but at the first appearance of bloom-buds on the leading shoot, those buds had been nipped out, and the sample shown bore pods about eight inches long on the side branches. These pods were a finer colour than those of the first batch, and the plants had a better appearance, bearing abundance of flowers, and showing incipient pods in abundance. The third example was one of a batch of *Raphanus serpentarius*, a variety of *R. caudatus*, the pods of which are more contorted than those of *R. caudatus*. These had been sown singly in thumb-pots in the latter part of April, and the pots placed under glass. As soon as the plants were up, they were placed out of doors on a sunny border, and were now in 6-inch pots, showing their first flower-buds. Mr. Hull, of Blackheath,

brought a dish of Easter Beurré pears, in excellent condition as to appearance, but on tasting them they were found deficient of flavour.

ROYAL BOTANIC SOCIETY, SECOND GREAT SHOW, JUNE 6TH.—This second show was one of the best ever held at these gardens. The subjects were generally good ; there was an abundance of all needful elements, plenty of colour, plants of rarity and value, many of them of gigantic stature, the arrangement artistic as it always is, and rich beyond the average. The bank usually appropriated to orchids was this time filled with pelargoniums, presenting a grand display of colour ; and in spite of the absorption of pelargoniums by the International, there were at least seventy great specimen plants in the brightest trim, equal in fact to any pelargoniums ever shown—the fancies of course lighting up the mass with their peculiarly delicate and sometimes “foamy” swells of colour. On the great banks all round were fine-foliage plants, azaleas, and mixed stove and greenhouse plants in abundance, presenting on every hand a glorious combination of green and colour. In the drop-down in the centre were several special compartments ; one was a railed-in plot of zonal geraniums, where Mr. John Fraser had some splendid specimens, Eugenie Mezard, The Clipper, and Beauté de Parterre looking like waxwork amongst them. Mr. W. Paul filled up the remainder of the space with the Beaton series, including of course Rebecca, St. George, Waltham Naiad, and Crimson Queen. Another great block was filled by Messrs. F. and A. Smith, of Dulwich, with a pavement of tricolors, and a lot of fine zonales—amongst them Vesuvius, a fine scarlet ; Gipsy Queen, one of the cinnamon-zoned series, and a regiment of reds and scarlets. A raised platform was occupied by Messrs. Veitch with a sublime collection of new plants, including their wondrous Marantas, the delicious *Leptopteris superba*, the Selaginella-like *Retinospora plumosa*, the extravagantly beautiful and curious *Amaranthus* from the New Hebrides, and a host of gems of similar rarity and value, with the noble palm *Stephensonia grandifolia* for a centrepiece. In the “continuation,” orchids, fruits, and cut flowers, and beyond that again Mr. John Waterer’s exhibition of rhododendrons.

Novelties.—*Petunia illuminator*, from Mr. Clarke, of Brixton Hill, made a distinct and brilliant appearance as a seedling last year. On the present occasion six specimen plants were sent ; they were smothered with flowers from the rim of the pot to the tips of their three feet of growth, and *all the flowers were exactly alike*—that is, beautifully barred with white rays on a rosy-purple ground. All other petunias of this class, however beautiful, as many of them are, have the habit of sporting to self, or of merging all their bars into one petal, or of changing their bars to spots, clouds, margins, and suffusions, so that by the time you have grown a fine plant you have lost its character. Mr. B. S. Williams, of Victoria Nursery, Holloway, sent three new amaranthaceous plants. *Alternanthera sessilis amœna*, small narrow leaves, variously coloured light green, buff, and fiery crimson. *Telianthera ficoides versicolor*, small leaves, the colouring deep olive and carmine. *Alternanthera spathulata*, long spathulate leaves, dull dusty green, bright grass-green, carmine, and creamy pink. From Messrs. Paul and Son, fine bunches of flowers of *Pawlonia imperialis*, the result, no doubt, of the hot dry summer of 1865, which thoroughly ripened the wood of this noble tree, and, as in 1857, afforded opportunity for likening its beautiful flowers to lavender-coloured gloxinias. From the same, a beautiful double-flowered thorn, described as scarlet, but rather a deep pinky red. It is a most beautiful variety, and will be much valued for choice collections of flowering trees. *Cytisus Laburnum Alkengerii*, deep green hard shining leaves like an evergreen, flowers in elegant bunches eighteen inches long. From Messrs. Jackman and Son, Woking, three varieties of *Clematis*—namely, *Alexandra*, large indigo-purple ; *Velutina purpurea*, large, neat in form, purple with maroon shade ; *Magnifica*, very large, soft purple with distinct bars of reddish-purple, forming a four-rayed star.

Geraniums.—New varieties abounded. The following were noted as the best. —From Messrs. Paul and Son : *Picturatum grandiflorum* ; this belongs to the oak-leaf section ; the flowers are very pretty, lowest petals a nice tone of rose, top rosy-carmine. From Mr. Turner : *Duchess of Sutherland*, leaf light green with faint umber zone, fine trusses of nosegay flowers, colour carmine. A fine variety, and quite distinct. From Mr. Frost, Maidstone : *Maid of Lampeter*, fine zoned leaf, large flowers, petals overlapping, clear light cerise ; fine. From Mr. Windsor, gardener to J. R. Ravenshall, Esq., Walthamstow : *Pink Globe*, large dull green leaf,

contracted dull zone, fine trusses of clear pink with white on the top petals; fine. Delicatum, fine bold zone, flowers flat, petals overlapping, pale pink, top petals white at the base; fine. From Mr. William Paul: St. George, fine deep scarlet. Waltham Naiad, pretty carmine flowers, and plenty of them. Crimson Queen, Stella-like trusses of scarlet-crimson. Rebecca, a fine thing for bedding, colour violet shaded scarlet. From Messrs. E. G. Henderson and Son, tricolors in profusion. Lucy Grieve, a fine plant of this rarest and richest of the Mrs. Pollock strain; the colouring intensely rich and uniform; it stands alone even in this grand series. Lady Cullum, very distinct, and gloriously painted; apparently a good grower too. Less striking, but perhaps not less useful, though in a quite different section, is Christine Nosegay, in the style of Boule des Hesperides; the flowers a shade lighter than Christine. Pink Stella, fine trusses of rosy-pink, quite in the style of Stella; its value depends entirely on its behaviour out of doors. Royal Crimson, pale marbled leaf, nosegay flowers of deep crimson. Gloire de Nancy, a bold-habited zonale with double flowers; the colour crimson-scarlet. Peltatum elegans, a very elegant ivy-leaved variety, with superb flowers, coloured like Beaton's Lady Cullum.

New Pelargoniums.—The following were selected as the best of a batch of about 30 varieties brought forward:—Alfred (Hoyle), average size and form; lower petals rosy-pink with lilac shade and small crimson spot; top petals blackish-maroon. Archbishop (Foster), large, the form good; lower petals clear rosy-carmine, white throat; top petals black shading to rich lake; fine. Betrothal (Foster), medium size; lower petals clear light carmine, fine white throat; top petals marked with blotch of black. Congress (Hoyle), medium size, good form, lower petals fiery carmine with tinge of violet; top dark; showy. Eclair (Hoyle), fine form; lower petals clear red, with touch of violet in the throat, fine dark top. Favourite (Hoyle), large beautiful form, quite smooth; lower petals richest rosy lake overlaid with blackish lake veins, top petals blackish-maroon. First-rate. Golden Button (Hoyle), medium size, lower petals vivid scarlet-lake, top petals maroon-crimson; a pleasing flower. International (Hoyle), large, circular, smooth; clear salmon overlaid with lake veins, dark top; a fine flower. King of Flowers (Foster), small; lower petals a curious shade of orange-scarlet, with tinge of violet in the throat; top petals dark. Lord Lyon (Hoyle), medium size, refined in form, quite smooth; lower petals rosy-red overlaid with light lake veins, top rich dark shading to lake with black veins. Decidedly a first-class flower. Milton (Foster), medium size, faultless in form, and with commanding carriage. Lower petals rosy-carmine overlaid with maroon veins; top petals velvety black. Thoroughly first-rate. Negress (Foster), medium size, petals of great breadth, and smooth as ivory. In colouring, this is as unique as in form. Lower petals maroon, with fiery-red breaking through, and margin of fiery-red continued to the inside so as to define the boundary between the maroon body colour and the snow-white throat. Top petals in the same style, but darker. Prince Consort (Foster), very large, and the form superb, but unfortunately the top petals have an incurable fold in the inner margin, owing to their being a trifle too large to expand fully. Lower petals rich rosy-crimson, overlaid with dark veins; top petals satiny maroon. A bold and attractive flower, of first-class excellence for conservatory decoration. Prince Teck (Foster), medium size, rough, but bold and stout; lower petals richest lake, top petals fine maroon shading to lake; remarkably brilliant and distinct in colours. Rustie (Hoyle), very large, quite circular, and smooth as ivory, the petals of great breadth, and stout as if cut out of velvet; lower petals lake with orange shade, sharply defined white throat; top petals richest velvety maroon with sharp fiery-rose edge. A grand flower. Unison (Foster), small, refined, the form most beautiful; lower petals lake with orange shade, top petals black with lake margin. A cheerful, rich, and finely finished flower.

CRYSTAL PALACE ROSE SHOW, JUNE 23.—Though by no means the sort of exhibition we should like to see, there can be no question that the Crystal Palace rose show is highly attractive to the general public, and in that sense highly successful. It might be more satisfactory to rose growers than it is, but to render it so would need greater liberality on the part of the direction, and greater skill in preparing the schedule, than are exercised at present. Pot plants were not numerous, cut flowers abounded; and taking the exhibition as a whole, it was scarcely so good as in former years, the lateness of the season having very much to do with the generally poor character of the roses shown. Mr. Keynes, of Salisbury,

and Mr. Hedge, of Colchester, were the heroes of the day—the first in the trade, the second in the amateur classes. Messrs. Turner, Paul and Sons, Fraser, Mitchell, and Francis were the principal trade exhibitors; and Messrs. Hedge, Chard, Moffat, Wright, Stoddart, Lacey, and Dr. Cooper, the principal amateur exhibitors. The principal defects of the flowers were thinness of petal, and the prevalence of open eyes. There was, in fact, not one complete stand in the whole show; for even in those that took first prizes a few open-eyed flowers, or examples of malformation, were to be seen. Having carefully inspected the whole, we think we cannot do better for the information of our readers than enumerate the varieties shown in the three principal classes. These enumerations will give the names of the favourites, and may be considered the best selections that could be made this season by the most eminent exhibitors. Varieties selected by experienced exhibitors for exhibition on so important an occasion cannot but be desirable in every private garden, and therefore the following particulars will have a practical value, in spite of the “dryness” of mere catalogues of names.

Mr. Keynes's First Prize Ninety-six.—General Jacqueminot, Marechal Niel, Kate Hansburg, Gloire de Vitry, Victor Verdier, Alphonse Belin, Devoniensis, Alpaide de Rotalier, Beauty of Waltham, Madame Willermoz, Madame Emain, Countess Barbantanne, Olivier Delhomme, Souvenir d'un Ami, Louis Van Houtte, Madame Sertot, Charles Lefebvre, Centifolia Rosea, John Standish, Moire, Comte de Nanteuil, Mdle. Bonnaire, Admiral La Peyrouse, Adam, Souvenir de Charles Montault, Louis de Savoie, Lord Macaulay, Belle Normandie, Vicomte Vigier, Madame Furtado, America (shown in several stands, and in every case good), Madame Clemence Joigneaux, Madame Rivers, Maurice Bernardin, Sombreuil, Colonel de Rougemont, Le Baron de Rothschild, Louise Magnan, Joseph Fiala, Gloire de Dijon, Bernard Palissy, La Ville de St. Denis, Gabriel de Peyronny, Jules Margottin, Jaune d'or, Comte de Paris, Clement Marot, Souvenir de William Wood, Souvenir d'Elise, Leopold Premier, Monte Christo, Achille Gonod, Prince Camille de Rohan, Mansais, Marechal Souchet (Damaizin), Madame Moreau, Madame Charles Wood, Duchesse d'Orleans, Madame Victor Verdier, Gloire de Mousseuses, Madame Caillat, Anna Alexieff, Duc de Rohan, Triomphe de Rennes, Gloire de Santenay, Vicomtesse Douglas, Anna de Diesbach, Charles Lawson, Monsieur de Pontbriant, Marie Bosset, Francois Lacharme, Triomphe de terra de roses (a rose of immense size, finely cupped, and by no means coarse, the petals beautifully arranged, colour dull purplish-rose), La Brillante, Caroline de Sansal, John Keynes, Michael Bonnet, L'Eblouissante, Marguerite St. Amand, Pierre Notting, Momere, Duc de Wellington, Madame Hector Jacquin, John Hopper, Souvenir de la Malmaison, La Reine, Madame la Boute (T.), Xavier Olibo, Cloth of Gold, Madame Pauline Villot, Madame Boll, Prince Henri de Pays Bas, Comtesse de Chabillant, Madame Vidot, Baronne de Wassanaer, Madame Charles Wood.

Mr. Keynes's First Prize Forty-eight.—Centifolia Rosea, Madame Victor Verdier, Caroline de Sansal, Mdle. Amelia Halphen, Madame Sertot, Madame Charles Joigneaux, Comtesse de Chabillant, Lord Macaulay, Madame Charles Verdier, Gloire de Mousseuses, Moire, Charles Lawson, La Reine, Maurine Bernardin, Duchesse d'Orleans, Beauty of Waltham, Souvenir d'un Ami, Jules Margottin, Cloth of Gold (superb), Duc de Rohan, America (fine), Madame Moreau, Madame Vignerot, Victor Verdier, Souvenir de la Malmaison, Kate Hausburg, Louise de Savoie, Triomphe de Rennes, Souvenir de William Wood, Belle Normandie, Baron A. de Rothschild, Gloire de Dijon, Senateur Vaisse, John Hopper, Marguerite St. Amand, Pierre Notting (a very telling dark rose), Devoniensis, Madame Charles Wood, Madame Vidot, General Jacqueminot, Vicomte Vigeur (fine), Madame Rivers, Senateur Vaisse.

Messrs. Paul and Son's, Second Prize, Forty-eight.—Madame Crapelet, Xavier Olibo (becoming a favourite, the centre rolls up in a conical form, as some of the best of the teas do; the outer petals folding back boldly, one of the most distinct and beautiful of the dark roses), Monsieur Boncean, Souvenir de la Malmaison, Jean Goujon, La Fontaine, Louise Margottin, Lord Clyde (a poor thing), Pierre Notting, Catherine Guillot, Souvenir d'un Ami, John Hopper, Madame Charles Verdier, Baron A. de Rothschild, Princess of Cambridge (beautiful), Monte Christo (looking crushed and dusty), Madame Julie Daran, Jules Margottin, Madame Rivers, Madame Boll, Le Rhone, Madame Clemence Joigneaux, Francois Lacharme, Mdle. Bonnaire, Madame Charles Wood, Marechal Niel (this wears well, is always

good, it is certainly one of the best yellow roses we have), Centifolia Rosea, Madame Victor Verdier, Marechal Vaillant, Madame Furtado, Senateur Vaisse (with huge eyes), Gloire de Dijon, Charles Lefevre, William Griffith, La Brillante, Madame Villermoz, Prince Camille de Rohan, Comtesse de Chabillant (all eyes, which it is apt to be when tried in any way), Madame Boutin, Devoniensis, Maurice Bernardin, Victor Verdier, Madame Fillon (coarse), Olivier Delhomme (a beauty), Modele de Perfection, and Lord Macanlay.

Mr. Keynes's First Prize Twenty-four.—Madame Charles Wood, Marguerite de St. Amand, Louise de Savoie, Prince Henri de Pays Bas, Catherine Guillot, Charles Lawson, Madame Moreau, Madame Vidot, Souvenir de la Malmaison, Madame Pauline Villot, Anna de Diesbach, Gloire de Dijon, John Hopper, General Jacqueminot, Moire, Madame Caillat, Beauty of Waltham, Centifolia Rosea (quite a saucer), Marechal Niel, Charles Lefebvre, Madame Sertot, Victor Verdier, Maurice Bernardin, Devoniensis. Mr. Charles Turner, of Slough, took second place in this class with a very nicely-selected and nicely-finished lot of flowers.

Mr. Turner's Second Prize Twenty-four.—Paul Ricaut, La Reine, Victor Verdier, Madame Maurin (a nice light tea, the colour a mixture of cream and fawn, with blush centre), Souvenir de la Malmaison, Prince Camille de Rohan, Devoniensis, General Jacqueminot, Maurice Bernardin, Vicomtesse de Cazes, John Hopper, Caroline de Sansal (fine), Comtesse de Chabillant, Souvenir de Comte Cavour, La Fontaine, Gloire de Dijon, Charles Lefebvre, Anna de Diesbach, Madame Victor Verdier, Alba Rosea, Lælia, Monsieur Joigneaux. Messrs. Paul and Sen were third in this class, and in their lot occurred many other good things—the best Xavier Olibo in the show, a superbly-finished flower.

TO CORRESPONDENTS.

WIREWORM AFTER GERANIUMS.—"I am told that wireworm often follows scarlet geraniums. Is there any truth in this? I have had scarlet geraniums several years in one bed, and this spring all my tulips have been spoilt by the wireworm. I shall have Tom Thumb *Tropæolum* this year instead of geraniums. —A. B. S." [We have never known an instance of wireworm following geraniums in such a way to indicate that the geranium had anything to do with the introduction of it, and we do not think there can be any truth in the report that such is the case. It is, however, a question for our readers generally, and if any of them can throw light upon the subject, we shall be glad of their communications. The only reliable way to eradicate wireworms is to trap them with slices of carrot thrust into the soil, these to be taken up daily and burnt, or the worms picked out and destroyed.]

ACACIAS AND MANURE WATER.—"Is it beneficial to give *Acacia armata*, *grandis*, etc., manure water during their season of making new wood? —E. C. J." [We never saw any necessity to give these plants manure water unless they were in old soil, and in that case repotting is far preferable. Weak manure water would not hurt them, however, as we happen to know a place where great numbers of these plants are grown, and *all* the water used is manure water, for the supply is drawn from a ditch, which is always charged with manurial matters.]

SHADE FOR A FERNGHOUSE.—J. M'D.—Common lime-whiting mixed thin with a little size to give it body, thrown on the glass *outside* by means of a syringe, makes an excellent shading, which the winter rains wash off. It should be put on so as to form a sort of spotted or streaky coating, and not to cover the glass in a thick coat. The objection to it is that it is very unsightly, and in private gardens tiffany hung up inside is much to be preferred.

PLANTING A ROSE DEEP.—B. H. M.—The standard Coupe d'Hebe will probably perish if you plant it deeper than it is already, and to bank up the stem with earth will be almost as bad. But there is just a chance of saving it, if, as you say, the stem is decaying, and you want to get a new set of roots above the decaying part. If you are inclined to incur the risk, make an incision just above the place where the stem is decaying, let this incision go half round the stem, and wide enough to take the edge of a penny piece, and deep enough to go to the base of the bark, but not to cut into the wood if it can be helped; then bank it up above the incision with a mixture of turfy loam, rotten manure, and leaf-mould, equal parts,

and keep the mound always moist. This is the best time in the year for the operation, but if the tree dies you must not blame us, as it is a sort of kill or cure process.

Clericus Hortensis is thanked for his suggestion.

CEANOTHUS DENTATUS, Elginensis.—It is much the best plan not to prune the bush at all. But if to keep it in order it must be pruned, let it be done directly the flowering is over.

INDIAN SEEDS.—Mr. James Orr, of Staplehurst, Kent, is thanked for the parcel of Indian seeds. Some of them may be useful; but we cannot make any promise of supplying him with plants next year. We never undertake to grow seeds sent to us. We are quite sensible of the kindness intended, but we have our own plans and purposes, and usually foreign seeds do not pay for the trouble they occasion.

VINES, ETC.—*J. A. P. A.*—We do not at all approve of the proceedings of the person you employed to cure your vines of mildew. There was no occasion for cutting the vines to pieces, and re-glazing and re-painting the house, unless they (and the house) were many degrees worse than you represent. You are keeping the house and the vines too dry, and we think you give too much air. At all events, you had better give the border a good soaking at once, and have it regularly and liberally watered during the next six weeks, and use the syringe at the same time. Occasional volatilization of sulphur will probably bring the vines into perfect health. *Solanum atripurpureum* may be planted out, and *Tritoma uvaria* must be planted out. Four or five canes are enough under any circumstances for each stool of raspberries.

RIDDELL'S SLOW COMBUSTION STOVE.—*T. R. Lee.*—Several of our correspondents have informed us that Riddell's slow combustion stove answers admirably for heating greenhouses. We have never used it, and cannot give any opinion. Musgrave's slow combustion (Musgrave Brothers, High Street, Belfast) we have used, and found invaluable. Let it be understood, however, that a stove *inside* a plant-house is always objectionable.

STIPA PENNATA.—"I must not omit to answer your question in the **FLORAL WORLD** of this month relative to the number of seeds sown, and those which germinated, of *Stipa pennata*. So far as I can remember, I placed about ten or twelve seeds in a 48 sized pot in various positions, some flat, some with their points downwards, some in a reverse direction. I used light soil, and covered them with a mixture of silver sand and cocoa-nut dust. Four seeds out of the number germinated, and they have formed nice strong plants. Thanks for your promise of attention to the kind of evergreens likely to suit a limestone soil.—Yours very truly, *F. J. Young, South Milford.*"

GARDEN VERMIN.—*W. W. and others.*—We have received simultaneously from several correspondents inquiries after information on the most effectual method of dealing with garden vermin, the plagues most loudly complained of being snails, woodlice, and ants. The first two are destructive marauders; the last is rather troublesome than destructive, though they destroy sometimes—as, for example, when they construct a nest in a seed-bed, and bury the young plants in mounds of fine earth, or when they take possession of a frame in which a number of cuttings have been bedded out. Three years ago we lost four-fifths of a batch of rose cuttings by the mining operations of a colony of ants. The batch consisted of about 3000 cuttings, and the operations of the ants commenced just when the roses were forming their first roots, and when we were beginning to leave them to take care of themselves, having removed the lights to expose them to the showers. Let us consider the snails and woodlice first, and add as a makeweight earwigs. The grand preventive of all these is active tillage of the ground. Neglect of any kind is favourable to their increase. They are sure to multiply where there are heaps of rubbish, rank crops of weeds, fences unclipped, and dirty holes and corners. The frequent use of the hoe, the immediate clearing off of crops that have had their day—whether vegetables or flowers—and the manuring and planting of the ground with successions, will do wonders to check the depredations of vermin. Every disturbance of the soil exposes them and their eggs and young to influences detrimental to their increase, not the least among these being the keen eyes of birds, kept vigilant by the calls of hunger. Frequent dressing of the surface soil with lime and soot will do wonders, both to kill the vermin and produce a healthy vegetation. We do indeed see lime used so freely sometimes, that it must kill the plants as well as the snails; but we do not advise the wasteful and destructive use of so powerful an agent. A sprinkling which suffices to make a barely perceptible grey coating on the

soil is as effectual as a heavy dressing, and the repetition of the thin dressing will in time bring the whole piece into so clean a state, that vermin will be virtually unknown. We come next to consider special means of eradication, and these are many. Trapping should be followed up in a systematic manner wherever vermin abound. Small heaps of brewer's grains will draw snails together in a most convenient way for killing them. Lettuce leaves placed under empty flower-pots will collect the woodlice in dozens or hundreds, and, while they can get lettuce, they will not care to eat anything else. Slices of potato, carrot, and apple are also good baits. Moreover, any dry and dark hiding places soon get filled with woodlice, and a dose of boiling water poured into such dens daily, without disturbing the materials of which the dens consist, will clear them off wholesale. The writer of this has waged war in all sorts of ways with these plagues for many years, having valuable collections of plants in a garden which is surrounded with breeding grounds for all sorts of vermin. Among other methods adopted, one is to put a few empty pots one inside the other, in cucumber frames, and every morning to pour boiling water into them. The water soaks into the bed and does no harm if near the woodwork, and when the pots are shaken asunder dozens of dead woodlice are found. But another and more systematic plan is adopted, and, having proved eminently successful, we advise any of our readers who are situated as we are, to proceed as follows: Procure a portable copper—that is to say, one of those “iron coppers” which are made for boiling water in the open air for tea-parties, and which are often used in outhouses by laundresses. Londoners can find such in Barbican and Old Street, and the prices range from thirty shillings to three or four pounds each. Suppose a border, in which asters, stocks, phloxes, and pentstemons are planted, and in the rear of the border an old pivot hedge, out of which the vermin issue in swarms. Such, indeed, is the nature of our border on which the operation is conducted. In the front of this border a number of small flower-pots are plunged to the rim. Every evening these pots are filled with lettuce-leaves, pea-shells, slices of cucumber, or whatever tempting stuff is at hand. The pots are then covered with cabbage leaves or tufts of moss, with, in short, anything through which woodlice can push or a snail eat its way. Every morning a fire is lighted with garden rubbish, such as *débris* of woodstack, etc., and a few gallons of water are obtained boiling hot. A dose of this is poured from a water-pot into each of the traps. In the evening the traps are cleared out and filled again, and so on for ever. This appears a tedious process, but without it we should have to relinquish horticulture under our present circumstances. We adopted the “iron copper” to make an end of the diurnal row between the gardener and the cook, the latter refusing the thermal element, or because of the demand made upon her, putting the *cuisine hors de combat*. Now for the ants. If the nests are so situated that boiling water can be administered, why the remedy is easy enough. It is very seldom, however, that this can be done, for, in the first place, the water cannot be obtained, or the nests are in places where the destruction of vegetation by the process could not be borne. It is not generally known that fresh Peruvian guano will drive ants from any spot, however firm a hold they may have obtained upon it. Suppose a colony of ants to be commencing operations on a lawn, it is an easy matter to trap them all by placing a large empty flower-pot, with the hole stopped, over it. The ants will build up into the pots, and in a short time it may be lifted with a shovel and be carried away and dropped into a vessel of water, which will make an end of it. When they make a run up the stem of a fruit tree, a line of gas tar all round will put a stop to their progress and do no harm to the tree. To poison them, mix arsenic with sugar and water, put the mixture in a saucer, and lay a slate over it, and on the slate a stone. This of course, is a dangerous plan, and any one who thinks of adopting it must use their own judgment as to the safety of any larger animals. In Jones's “Gardener's Receipt Book” it is said that ants will avoid any tree which has a circle of chalk round it. Having never made use of chalk to check their movements, we cannot say if this be true.

THE FLORAL WORLD

AND

GARDEN GUIDE.

AUGUST, 1866.

ROSES IN 1866.



WE propose to follow our established custom of offering our readers a review of the rose season. The season may be said to be over, though we shall have roses until severe frost makes an end of them. On several occasions we have cut good blooms of hybrid perpetuals on Christmas and New Year's Days; but considering the matter from a critical point of view, it must be said that the rose season continues only during the months of June and July, lasting in all from six to seven weeks. The autumnal bloom is oftentimes abundant and beautiful, but it is never general, and very much of the praise bestowed upon the "perpetuals," on account of their long-continued bloom, is undeserved, because none of them are really perpetual, and only a few bloom freely in the autumn. However, we have not taken up the pen to deal with a favourite theme, and at the same time find fault with a class of flowers the cultivation of which we have encouraged with zeal. Indeed, we are bound still to praise the "perpetuals," though very few of them are of much account for autumnal flowers, but because amongst them we find the best of all roses. It has not, so far as we remember, been noticed that the schedules of the great rose shows are admirably adapted in one respect to bring forward the best flowers, without respect to class or fashion. We ask for the best ninety-six or seventy-two varieties, and lay no restrictions on the exhibitor. He may place on his stands as many Teas, Gallicas, Chinas, Bourbons, and Hybrid Perpetuals as he pleases. There is simply no rule, and wherever and however he can cut a first-rate rose, he may do it, and take his chance. As a matter of course, the date of the show has much to do with the selection of the varieties. If the date is early, we may expect to see many teas in winning stands; if late, we may expect fewer teas and more Bourbons. The latter part of June and the early part of July are the times chosen for exhibitions of roses; and from the 15th of June to the 25th of July there are more roses and more sorts of roses in bloom than at any other time in the year. Yet with all the sections and classes to choose from, and with a schedule which permits free choice, exhibitors find their stronghold

to be the class of hybrid perpetuals, and that, we think, is sufficient proof that *as a class* they are the best of all garden roses. In the first prize ninety-six, at the Crystal Palace show (Mr. Keynes, June 23), there were only nineteen varieties that were not hybrid perpetuals. In the first prize seventy-two, at Birmingham (Messrs. Paul and Son, July 5), there were only ten that were not hybrid perpetuals. It is but proper, however, to remark that nearly all the perpetuals of recent introduction have in them such a predominance of Bourbon blood that they might be classed with Bourbons without any serious impropriety. It is the strong taint of China blood that in the first instance gives them their peculiar character, and their variety of colouring. But the breeding inclines of late to the Bourbon race, and hence no doubt results the sameness which is but too apparent in the varieties of latest introduction. We would counsel all who engage in raising new varieties (and the number of raisers is fast increasing) to cross the Bourbons with the Chinas and Noisettes, both to obtain new characters, and to promote the habit of continuous blooming, which though so imperfectly developed in the hybrid perpetuals, has nevertheless contributed greatly to their popularity.

A thousand interesting points might be elucidated by a review of the recent exhibitions; but we must be content to deal with but a few. The relative influences of soil and climate are of great importance to cultivators of roses. If both soil and climate are unfavourable, the difficulties are numerous. Take the case of Mr. Francis, of Hertford. He has a poor gravelly soil and a climate not of the warmest. The best he can do is to grow roses on the Manetti stocks, which is able to find food in his unfavourable soil, but is so precarious in growing that his losses in late springs are numerous. The two unfavourable circumstances go far to explain how it is that Mr. Francis rarely takes a high position at a good exhibition. Twenty years ago he was much more fortunate than now, but competition has increased, and the roses that once gained honours for the Hertford nurseries, are now not good enough for first positions. Take the case of Messrs. Paul and Son, of Cheshunt, who have a cold climate and a strong soil. When Messrs. Paul have a date that suits their climate, they can probably show roses equal to any cultivators in the whole of Britain, and superior to all except some two or three, who occasionally divide honours with them. Give them their own time, and their soil will do the rest; let the time be unsuitable for their bleak position, and some exhibitor from a warmer quarter will steal a march upon them. This consideration leads us to reflect upon the conditions under which Mr. Keynes pursues his career as a rose-grower. The soil at the Salisbury nurseries is a poor thin, stony, dry material, which only the Manetti can live upon with any fair prospect of success. It is so thin, indeed, that it is impossible, or nearly so, to use a spade on the ground; the ground work is all done by means of short-tined forks. Yet Mr. Keynes takes a full share of first prizes, and always shows creditably, and occasionally astonishes connoisseurs with the magnificence of his flowers. In this case it is

the climate that wins. Extra warmth makes amends for deficiency of food. Mr. Keynes was enabled to take the first position at the Crystal Palace on the 23rd of June, through the forward state of his flowers, consequent on their enjoyment of a genial clime, Messrs. Paul and Son being second. But on the 5th of July the tables were turned. Messrs. Paul and Son then took first place at Birmingham, Mr. Keynes being second. At Salisbury the thin soil and the warm climate do not well agree after the summer has fairly set in; at Cheshunt, a strong soil gives the roses plenty of substance to endure heat, and the climate being later, the 5th of July is a better date for them than for the flowers grown at Salisbury.

Another point of some importance may have a word with advantage. Out-door roses were everywhere in a miserable plight when the month of June came in; they were almost leafless, and such promise of bloom as they gave was a promise of such blooms as a genuine rosarian would sooner destroy than keep. But there came a time of cool and plentiful rain, and, as if by magic, the roses became themselves again. How true it is, that much as the rose loves sunshine, it also loves abundance of water, and cannot reveal its beauties without copious supplies of food. This, however, is a lesson often told and repeated—the experience of every season tends to confirm it: if the season be cool and moist, roses are superb; if hot and dry, they are thin and speedily fall to pieces. During the second and third weeks of last month the heat was great, and in most places the roses were burnt up within a few hours after they were expanded.

The new roses have not completely driven the old ones out of the field, and so a few ancient friends remain to embellish the rosarium. We are frequently assured that Jules Margottin is quite beaten and superseded, but we do not believe it. Madame Rivers and Madame Vidot are certainly still in the first rank. Lord Raglan and Lord Clyde, which are really second-rate varieties, have been very fine this year, and valuable for their intense carmine colouring. Victor Verdier, one of the grandest of roses, stands almost alone for substance, finish, and colour. General Jacqueminot is valuable on account of its profuse habit of blooming and its splendid colour, and occasionally it may be cut in fine condition. Comte de Nanteuil, La Ville de St. Denis, Colonel de Rougemont, Alex. Bechmeteff, with many other old favourites, are, as our reports of exhibitions testify, still in the front rank of show flowers. Perhaps, for garden use, the three best roses are Lord Nelson, Sir Joseph Paxton, and Duc de Rushpler, but, as might be expected, they are very defective in show qualities; we cannot have quantity and quality too. Amongst roses of recent introduction, that may be considered fully established, we may name, as pre-eminently fine, Francois Lacharme, Charles Lefebvre, Baron A. de Rothschild, Marechal Niel, Beauty of Waltham, Le Rhone, Duc de Rohan, Lord Macaulay, John Hopper, Madame Charles Wood, Madame Derreux Douville, Comtesse Chabillant, Olivier Delhomme, Dr. Andry, Gloire de Santhenay, Vicomte Vigier, Maurice Bernardin, Prince Camille de Rohan, and Senateur Vaisse. No one pretending to love roses and grow them,

no one pretending to understand them, can do without the twenty just named. As for still newer kinds, we have prepared the following notes, descriptive and critical, after frequent inspection of the varieties named, and trust they may be useful to our readers:—

Admiral La Peyrouse.—Large, flat, bright purplish-red shading to violet. Not a first-class show rose, but a good grower and free, which renders it valuable for garden purposes.

Alfred Colomb.—The form not far from perfect, superbly rolled up; colour nearly the shade of Madame Crapelet, with a silvery shade on the under side of the petals.

Alpaide de Rotalier.—The flowers shown were not in good condition. The variety is decidedly good, and of a class that needs a few recruits. Colour transparent rose.

Arles Dufour.—A quartered rose, though usually described as globular; the colouring is exquisite, consisting of refined shades of crimson and violet, deepening to black.

Auguste Riviere.—In the style of Victor Verdier, but showing more abrupt and striking contrasts of silvery rose and rich carmine; the petals are shell-shaped, turning over silvery.

Baronne de Kinkelin.—A first-rate imbricated dark rose, the colour deep red shading to rich purple.

Camille Bernardin.—A quartered and decidedly flat flower, very neat and compact; the colouring very beautiful, consisting of blended shades of crimson and carmine. A very pleasing flower, despite its bad shape.

Charles Margottin.—Very flat, in the way of Lord Raglan.

Comte Alphonse de Serengi.—Crowded and confused, but showy; colour rosy carmine.

Comtesse de Paris.—As nearly as can be judged at present, there is but a shade of difference between this and General D'Hautpoul.

Duchesse de Caylus.—A small, neat, nicely-finished flower, a good garden variety, on account of its free habit.

Duchesse de Medina Cœli.—Second-rate in form, but very showy; colour carmine crimson.

Duke of Wellington.—Small, form like Xavier Olibo; colour dark crimson, with purple shades.

Eugene Verdier.—Purple crimson shading to blackish crimson; fine.

Exposition de Brie.—Globular, bold, and symmetrical; colour rich carmine, a shade or two more brilliant than Madame Moreau.

Josephine Beauharnais.—Large, shell petals, good centre; colour clear pink, with silvery turn over. First-rate.

Kate Hausburg.—This pretty rose is deficient of substance; it is, however, large and showy, the colour flame-crimson.

La Duchesse de Morny.—Large, shell petals, very full and majestic in carriage; colour clear deep satiny pink, silvery turn-over.

Louis Van Houtte.—Large, full, rosy carmine shaded scarlet; beautiful.

Madame Amelia Halphen.—Rather flat, but fine; colour deep rich velvety crimson.

Madame Canrobert.—A fine full symmetrical flower, in the style of Madame Vidot, colour silvery flesh deepening to bright rose.

Madame Roussel.—Large, loose, shell petals, silvery rose.

Madame Stella.—Large and rather loose; when fully expanded, shows an eye; the colour is a lovely shade of soft pink deepening to warm rosy pink.

Madame Derreux Douville.—Large, full, fine form; colour delicate glossy rose shading to white at the edge. First-rate.

Madame Verschaffelt.—Loose, confused, purplish rose.

Madame Victor Verdier.—A superb rose, possessing the highest qualifications for show purposes, the centre extremely beautiful.

Marcella.—A promising H.P., globular, full of stuff, stout and symmetrical; colour pale flesh deepening to light rose. It may be likened to Souvenir de la Malmaison cast in a new mould.

Mdlle. Baptiste Desportes.—Compact, cabbage style, and cabbage colour, but full average size of the H.P. class, therefore eminently desirable.

Mdlle. Margaret Dombrain.—Large, coarse, deep pinky flesh. The flower shown was past its best, and it may prove to be a fine rose when fresh; therefore please accept the implied condemnation *cum grano salis*.

Monsieur Boncenne.—A grand dark quartered flat flower; colour fiery crimson deepening to black crimson; superb as respects colour.

Princess of Wales.—Large, flat, loose, fine broad petals, colour lively carmine; would be a good rose if not saucer-shaped.

Souvenir de William Wood.—Large, superb form; colour deep purplish-crimson; first-rate.

Xavier Olibo.—Peculiar in form, the outer petals rolling back, and the centre remaining rolled up in the form of a cone. It is extremely beautiful, and will long enjoy popularity on account of its distinctness; colour rich deep velvety crimson.

LETTUCES FOR WINTER AND SPRING.

BY HENRY YOUNG.



Have these in perfection during autumn, and from the middle of April to the end of May, sow from the 20th of July to the 10th of August, the full batch to be sown on the 25th or 26th of July. The best sorts to sow now are Hammersmith, Brown Silician, and Brown Dutch. These are the hardiest, and make capital saladings, and they do not need so rich a soil as the crisper kinds. In order to be very distinct, we should advise a sowing in a bed of fine rich soil, on the 20th of July, of true Bath Cos, which will supply good lettuces in October and November, and the smallest plants left will stand the winter. On the same day sow also, on a bed which was

manured for the last crop, Brown Silician and Hammersmith. In the course of a fortnight make up a piece of extra rich soil elevated a foot above the level, and prick out the strongest plants of Bath Cos upon it, a foot apart every way, and keep them shaded and watered till they make a start, when remove all shading, and encourage them to grow with the help of liquid manure. If old frames are plentiful, make up a few reserve beds in them above the general level of the ground, and into these beds plant the weakest plants from the seed-bed, six inches apart. These frames will serve a two-fold purpose. As soon as the plants are strong, remove every other one to a sloping bed under a warm wall, where shade and water, and let the others remain. The strongest plants will come into use during October, when we shall suppose the whole batch will be consumed. Those under the wall will succeed them; and if a smart frost should occur early in November, they may escape it through being high and dry; and if frost and wet destroy them altogether, the reserve stock in the frames will keep up the supply till Christmas, as any covering that will exclude frost and wet will suffice to protect them; and if they are kept in darkness two or three days together, they will take no harm. In a mild season this plan will carry the supply—supposing the breadth sown to be sufficient—far into January; and it must be remembered that lettuces are always esteemed, and are as elegant on the table as they are refreshing to the palate.

On the 25th of July, and again about the 10th of August, sow Hammersmith, Brown Silician, and Brown Dutch. These are all hardy kinds, and it is safer to sow a pinch of each than three times the quantity of any one, as if the winter should be severe there is a better chance of saving a few for spring use. On a good holding loam, without recent manure, if the beds are raised a trifle above the level, there will be a reasonable chance of these surviving the winter, and proving eminently serviceable for spring salads. At the final planting they should be ten inches apart every way, and instead of hastening growth by liquid manure, they should have only just so much help after planting as will enable them to take root safely. Keep the ground clear of weeds, but use the hoe as little as possible, so that the surface may become hard and firm.

It must be remembered that winter and spring lettuces are valuable, and where grown for market will always pay for glass. If a supply during winter and early spring is a matter of some importance, all the spare frames and lights should be got ready at the end of October, filled with light sandy earth, the plants taken up carefully with good balls, and planted nine inches apart in these protective beds. Water them in, keep the lights off as long as possible, and when the plants in the frames must be consumed at last, tie a few every week to blanch, and keep them dry during severe weather, and they will pay for the care and the space they have had. Now that orchard houses and ground vineries are in use almost everywhere, these may be made to pay their cost in keeping up a stock of saladings for winter. Grow the plants in open beds, and at the end of October or early in November trans-

plant them carefully and keep them under glass, moderately dry and with as much air as possible, according to the state of the weather.

THE PENTSTEMON AND THE PHLOX.



THESE are true florists' flowers, and real, good, useful, long-living and lovely flowers for the common border. Shall I ever again see them well-grown and in great plenty, forming proud bosses of pure white, vivid crimson, purple, scarlet, and vermillion, as I have seen them in days when bedding-plants were not imitating the dragons as they do now; when, in fact, the geranium and verbena had not begun to swallow other flowers as the serpent of Moses swallowed the serpents of the Egyptians? Perhaps I may; and if I obey our good Editor's request to do some justice to these glorious herbaceous plants, it may be my happy lot to assist in the work of restoring them to their proper place in English gardens, to be loved and honoured for their beauty, and valued much because of the ease with which they may be grown to perfection. I class them together solely because they do so well together, and under the same course of treatment. As for their beauty, nothing can surpass the phlox for perfection of form, for the flowers approach nearly to the true circle, about which florists make so much, and certainly too much fuss. Take a single flower, and you may say you have a work of art, though you know it to be a work of nature. Take a fine truss, and you may say that you are now only in the infancy of your experiences in the enjoyment of beauty, for if you were beyond infancy you would esteem the plant more than you do, and would not need that I should urge you to a new fit of admiration. As for the pentstemons, it is sufficient to say that gloxinias are prized as choicest among choice subjects, and these may be called the gloxinias of the border, gloxinias that require no stoves, no, nor even gardeners to grow them, nothing but a bit of nice loam, and a moderate amount of sunshine. We have them in all colours and styles; vivid crimson and rich purple occurring frequently, and among the newer kinds, especially those sent out by Mr. Bull, the painting of the throat and lip is exquisite.

Well, to grow these things, let us say a few words on that point. They will grow and flower freely in any soil, however poor, provided they have a reasonable amount of moisture, and are fully exposed to the sunshine. But they will bear a moderate amount of shade, and in truth my collections of both (good collections, too) are in the shade of trees, and get only the morning sun for a few hours. But to do them well requires a nice deep loam of a mellow texture, and rather liberally manured. In such a soil they make large leaves, stout stems, stout and splendid flowers, and keep gay till the frost puts a stop to their rejoicing. It is needful in planting to arrange

them so that they stand well in respect to relative heights, and as a rule pentstemons should be in front and phloxes in the rear, for the latter usually grow the tallest. But if they were mixed indiscriminately the first season, it would not matter much; the effect would be charming, even if irregular, and when they were in bloom the cultivator could mark them all as to heights, colours, habits, etc., etc., in order to replant them the next season, and then arrange them perfectly. I think it much better to put the case this way than to give a list as long as from here to the resumption of business by the broken banks, because with the best lists and heights most carefully noted, no one would be able to make a plantation in perfect order at the first start. As to general management, my advice is, let the ground be well prepared by deep digging and liberal manuring, and after planting, do nothing more than put sticks to prevent damage by storms. They may sometimes appear to want water, but in good ground they do better in the end without it than with it, and think of the dreadful labour that is saved thereby. To be sure, if the grower wants the amusement of watering, these plants will never object to it; but mind, if you once begin you must go on; for watering brings the roots of plants to the surface, and if the watering is neglected, those roots get burned, etc., etc.

I hope I shall be understood to desire that these plants should be well grown, because I am going to recommend a very easy way of growing them. If your climate is mild, and the soil well drained, all the phloxes will live through the winter, and if left alone several years, make great freely-flowering bushes. But the named varieties of pentstemons will not do this. The plan I follow is to take them up in the early part of October, and winter them in a frame, and in April plant them out again. This plan promotes the formation of huge specimens, and my idea is that in such a form we have the beauties of the plants more completely developed than in any other. There can be nothing more simple or effectual, the stools increase in magnitude every year, and if at any time it is desirable to divide them, it may be done in spring by simply chopping them in halves with a spade.

But this plan will not suit all our readers. Those who want the most perfect flowers possible, and are less particular about effect in the decoration of the garden, must propagate every year, and grow only young plants, always destroying the old stools as soon as they have served their purpose. This leads us, then, to consider the subject of

PROPAGATING PHLOXES AND PENTSTEMONS.

The only satisfactory way is to take cuttings, and get them rooted with as little aid from heat as possible. They may be multiplied in autumn and spring. The usual practice is to propagate pentstemons in autumn and phloxes in spring, but these last may be done in autumn with the others, if young shoots can be got from the base. If the season is a dry one, however, very few can be obtained, but in spring phloxes throw up shoots from the root freely, and if these are taken off when a few inches long, and potted round the sides of

pots, and placed in a gentle heat, they soon make roots, and must then be potted singly. Pentstemons generally produce plenty of nice shoots at the base in autumn, and if these are potted, several together in a pot, and put in frames, they may remain till spring, and be planted out direct from the cutting pots to the places where they are to bloom. If the stock runs short, all the plants may be topped in spring, and will root quickly in a gentle heat. When it is intended to propagate largely, it is best to take up all the old stools, and pot them in large pots, and keep them in frames. By this means a large crop of cuttings may be obtained early in spring, and they may be multiplied *ad infinitum*. The plants produced in this way do not, of course, attain to any great size, but they produce fine flowers, and those who grow for exhibition should follow the practice of propagating annually. I refrain from adding lists of varieties, as some excellent lists were given by the Editor in the early part of the year, and well as I am acquainted with these plants, I could not hope to compete with the judgment and taste evinced in the selections which the director of the FLORAL WORLD from time to time presents us. I therefore conclude here, and hope that many of our readers will find these brief notes of some practical value.

J. WALSH.

LILIES.

BY W. ROBINSON, F.L.S.



THE various species of this noble genus are now in full and stately beauty—their colouring of the purest and most exquisite character—their size and form superb, and their fragrance and associations of the sweetest and most endearing character. Why say all this of them? Has not much more than all this been said of them ages ago by England's greatest poet, and has not old John Parkinson written of them two centuries ago as the finest ornaments of his garden of pleasant flowers?

But where are they now to be seen? None of them but the common species—the white and orange—are now to be met with in English gardens, and even the common kinds have to be looked for in the gardens of the cottager, in the poor little labourers' gardens, which to me now often present a greater beauty than an elaborate and expensive bedding garden. That the most gloriously beautiful of all hardy flowers or bulbs should be expelled from our gardens in this way, is little other than disgraceful to us as horticulturists. They have been driven out by the fashion for bedding plants, but they "will come in again," and beautify our gardens, as soon as amateur cultivators see their beauty, and learn their value. Two hundred years ago, as I have said, their variety in colour and size was a theme for those who wrote on gardening when green orchards were in Holborn, but of late years fresh introductions from Japan and other countries have lent a richness to the family which few,

very few amateurs, have any idea of. Who has not seen the noble *Lilium auratum*, which has been so much admired at all our shows for some years past! And this is a hardy plant, as capable of cultivation in the open air, as the American cowslip or the double white rocket. How little do the owners of gardens, with good soil, but with little or no glass, know their privileges. Here, for instance, is a plant which our great nurserymen and gardeners have of necessity shown in pots from its scarcity, and from the necessity of convenient carriage, but the owner of a single perch of good fertile garden ground may grow it to perfection by preparing a spot with a little care, and there it may flourish and increase for years. All the good lilies are hardy. Some of the most beautiful and sweet are hardly ever seen in private gardens, though these are the very places they are wanted. *L. eximium* for instance, how many beautiful gardens well suited for its culture may not be passed through before meeting with a tuft of this pure white and very sweet flower, nearly six inches across when well grown! A hardy, easy to grow plant, too, not more than fifteen inches high or so, or even less, with neat shining leaves and sturdy vigour. Then there is the brilliant chalcodonicum, "the Lily of the Field," according to some; not so rare, it is true, but what so beautiful as its deep crimson blooms, so truly distinct and valuable for association with the white and buff and orange lilies? It is wonderful the varied splendour that may be met with in this family. I know of no genus of indoor plants that equals it! A pure snowy white—the common white lily; a bright orange—the orange lily of the orangemen of Ireland; a deep scarlet and very dwarf—the Siberian *Lilium tenuifolium*; a rich buff cream, the noblest in size and habit of all, perhaps—testaceum (or excelsum as it is sometimes called); a dark orange, dotted all over with jet black spots—tigrinum; a colossal flower with golden bands—auratum; and white, and spotted and pale lemon yellow, with minute black spots; and white, with rich purplish red spottings; and red and pure white again;—all hardy and free in good soils, as if wild British plants to the manner born!

The fine lancifolium varieties which are generally supposed to be tender and are generally grown in pots, may be grown finely in the open air, in sandy, free, and well-drained earth, and are so grown, and in quantity, even in Scotland. I have seen nearly a quarter of an acre of this fine species in the open air near Edinburgh, and any reader near that place may do the same by strolling into Messrs. Cunningham and Fraser's Comely Bank nursery.

That the day will soon come when every lover of out-door gardening will desire to possess a good batch of lilies, I have no doubt whatever. To be admired, they need but be seen in good condition. But the very name is sufficient recommendation to most of us. The season will soon be at hand when lilies lose their leaves, and go to rest under ground—that is the time to purchase and to plant them, and therefore the present is not the worst time to discuss their culture and capabilities.

The best way to obtain lilies is to purchase strong roots of the scarcer kinds of the seedsman or bulb-importer, and of the common

kinds from the cottage-gardener. The white and orange, though common, are among the very best, and may be had quite cheap, or for nothing wherever small cottage-gardens abound. Kinds like *tigrinum* and *chalconicum* may be bought from our seedsmen in autumn for fourpence or sixpence apiece.

The varieties of *lancifolium* are dearer, but yearly getting more plentiful. On the whole there is no expense that need be feared. Early in autumn as they can be obtained is the time to provide a stock. The site of a bed for their accommodation should be settled at once. My favourite way of growing lilies is in a rather large and isolated bed in a quiet green spot, away from the flower garden or any other important scene. Most villa, suburban, and country gardens have quiet green slopes, or patches of grass running out from the sward here and there, or grassy places irregularly surrounded by shrubs, which would be capital positions to make a lily bed in. In borders they may be done well, but from the miscellaneous contents of such they are in danger of a raking up or disturbance from digging now and then that may seriously hurt the roots of the lilies. If the soil is well prepared and deep, they thrive for years without disturbance, and therefore the best plan is to prepare for them a suitable place where they may remain permanently. A bed about ten feet wide would be the best for any garden above the town size. It should be dug out if necessary and filled with three solid feet of free rich earth, friable and sandy above all things, but with no sparing of good, well-rotted dung. The biggest orange lilies I have ever seen were grown in this way. An orangeman is passionately fond of orange lilies, and these showy flowers abound round thousands of the cottages of Irish Protestants. One I knew had a large bed of them, but years of growth had caused them to crowd together thickly, and to become somewhat weak. It was sandy soil. He took them up, determined to make them worthy of the good old cause, and putting about twelve inches of half-rotten cowdung in the bed, covered with a little earth, and replanted rather thinly. About two years afterwards I had some of these roots sent to London, and they were the astonishment of all who saw them. They were as large as medium-sized Swedish turnips. There can be no doubt, then, that strong-growing lilies are very fond of rich soil and manure.

Having prepared the bed and the bulbs, the planting is a simple operation—the only important thing to be attended to being the regulation of the heights of the various kinds. *L. excelsum* or *testaceum* grows tallest of any thoroughly hardy kind I know, and therefore it should be in the centre of the bed. The crown, or top of all the bulbs should be at about five or six inches from the surface. It is not certain yet how high good bulbs of *auratum* may grow in the open air in this country, and therefore until we know all about that he is best planted half-way between the centre and the edge among the medium kinds. They should not be planted in patches, because that is a very ugly way, and by planting them in circles or in irregular mixtures, and gradually working down from the tall kinds in the centre, to the orange ones at the edge, a long-con-

tinuing and beautiful effect may be obtained. For the edge *eximium*, *tenuifolium*, and *longiflorum* are the best. *Candidum*, the common orange, and *tigrinum*, should follow from the central *testaceum* in the order of their names. *Chalcedonicum* should come next, and then *lancifolium*s and *colchicum*. The *martagons* would be best near the orange and *tigrinum*; varieties commonly sold as *Thunbergianum*, fine dark orange kinds, would do well for coming between the *lancifolium*s and those mentioned as most suitable for the outer edge. It would not be necessary to plant very thickly, as if the beds were well prepared, the kinds would soon freely multiply. There are other fine kinds besides those mentioned in this paper, but it is best to confine ourselves to those that are readily obtained and easy of culture. Those who grow the kinds named will be sure to find all the others that are worth adding to their collection. The bed may be edged with some neat plants that flower about the time of the lilies, say *Campanula carpatica*, and its white variety, or, indeed, many hardy and beautiful dwarf herbaceous and alpine plants.

Not the least charm of the lilies is their peculiarity of flowering in succession. They drop in quickly one after another, and thus for a good many weeks there is a good bloom.

In borders, etc., the same treatment would suit, but of course it is very much easier of application in a single bed. However, no large and good mixed border should be without tufts of the finer lilies. Here and there along the shrubbery margin a mass of them look very charming, and, indeed, there are many places in the garden in which these delightful plants may be used with taste and advantage.

WINTER SPINACH.

BY A MARKET GARDENER.



THIS may appear a very insignificant subject, but it is not so to me, at all events, for I lost last year considerably more than a hundred pounds through the failure of my crop. It may be worth while to state how this occurred. The ground was got ready in good time after potatoes, and was not manured. The spinach was sown as usual, and we had a splendid plant. But very soon after the plant was established, and the leaves were three inches long, they began to drop off suddenly. In going over the field I noticed this, and instantly guessed what was the cause. On scraping away a little of the soil from the plants that were affected, I found that detestable thing, the larva of the Daddy Longlegs, which always attacks plants at the junction of the stem with the roots. Experience taught me there was nothing to be done. I might have wasted money on gas lime, or on searching out the grubs by hand; but I know too well the folly of attempting to cope with this pest in a remedial way. But a preventive process may be adopted. Many a reader of the

FLORAL WORLD will, perhaps, wish to know in what consists the preventive process. I can give it in a word. Let the ground be dug a little earlier than usual, and left rough for a week or ten days. Then cart in a good dressing of manure, and have the whole piece trenched, and the manure put in the bottom of each trench. The plant will derive no immediate benefit from the manure, which is an advantage; for if we have a hard winter, it will endure the frost better in poor soil. Yet the manure is not wasted, for in the spring, when the plant begins to grow again, the roots will have got down on the manure, and in the dry weather of March we shall see the spinach producing huge fat leaves when other things are not growing at all.

So much for the manure and the plant in their relation. You will now ask what about the vermin. Well, the first digging will expose the grubs, and the robins, and blackbirds, and rooks—so fond of newly dug or newly ploughed ground—will pick them up by thousands. Then those that escape death that way will be either buried in the trench at the next digging, or exposed to the view of the birds to be devoured. Thus the ground will be well cleansed for a year, and will not want manuring in spring, for the spinach will not consume all the strength of the manure. When the crop is removed, therefore, a deep digging with a four-tined fork is all it wants to prepare it for any kind of spring seeds, whether green crops or roots. As for other matters, all I need say is, lay out the ground in four-foot beds, use Flander's spinach seed, sow in drills, and thin in good time to six inches apart. All sowings of winter spinach should be finished by the 15th of August.

T. B.

STAND THEM IN WATER.



HAVE had such remarkable success in the cultivation of plants by standing them in water, that I feel compelled to send you a few lines about it. First, then, let me thank the FLORAL WORLD for having opened to me a "world," of which a few years ago I knew nothing. It has, indeed, increased my homely pleasures a thousand-fold. Secondly, let me acknowledge that it was from the same entertaining and practical work I first derived the hint that many plants ought, when growing, to have their roots constantly wet. I am no writer, and must say my word in a rough way.

Calla Æthiopica is not well-grown generally. It does not get enough water. I pot mine in large pots, in a mixture of stiff loam and rotten dung; keep them in the greenhouse all the winter, giving plenty of water. From the middle of April to the end of October, I keep them out of doors in the full sun, standing in pots inside a tub full of water. Their roots are immersed only about two inches. The effect is wonderful. They grow strong, and are almost always in flower.

Osmunda regalis and *Lastrea filix-mas cristata* are fine subjects to treat in this way, but it must be under glass, shaded, and with a free circulation of air. I prefer to have a glazed pan (such as a bread-pan, for instance) for such plants, and some of my specimens are now gigantic, being in 15 and 20-inch pots. I am convinced that hundreds of plants might be grown during summer in this way, and would attain to a grandeur of which we know nothing at present—unless, indeed, we have explored the warm wet hollows of the west of England. What a strange thing it is, that we plant all sorts of things in the same soil, and leave them to flourish or perish under uniform influences. Nature does not do so; she takes care to provide rivulets, ponds, and marshes for many of her choicest gems; and we must do the same. Yes, sir, I hope you will again send us a thunderbolt on the value of water, and tell our amateurs that they are like green-fly in this respect—that they are afraid of the life-promoting fluid. The last, sir, is a sort of Homeric utterance, and I subscribe myself,

RETICENCE.

EXOTIC AQUATICS, WITH FACTS IN RELATION TO THEIR CULTIVATION.

BY MR. J. F. M'ELROY, STAMFORD HILL.



HERE was a period in the history of gardening when it was not uncommon to find in almost every house that was devoted to exotics a cistern, or tank, in which aquatic plants were grown. I would not presume to assert that they had the best attention bestowed on their cultivation; sometimes you would observe the very opposite, allowed as they were often to become a confused or entangled mass, and then the knife would be used, only with the object of reducing the quantity, so as to effect some arrangement, but with no ultimate desire of attaining perfection as regards bloom, etc. If a little more than ordinary care were given to their cultivation, it would be found that there are among them some most beautiful objects. Indeed, there is far more interest and beauty connected with them than is generally admitted or understood by gardeners. We have ferns innumerable, that are only admired for their elegant fronds and graceful outlines. The same merit may be found in a few of our exotic aquatics. We would cite as a noble example the Papyrus, or paper plant, from which the Egyptians in the earlier ages obtained their paper. When grown in a hot temperature, it will attain the height of seven to ten feet, producing a splendid spray-like form. It is of very easy culture if you have a stove. I used to grow it in a strong loamy soil, in a large pot, as it likes plenty of pot-room. The plant in its pot was plunged in the cistern, and then it would grow quick and healthy. Why should not a number of others be treated in a similar manner? Of the dwarfer, or trailing, kinds, we have the handsome *Nelumbiums* and *Nymphaeas*, in numerous

beautiful varieties, some of which are hardy, others adapted to the temperature of the greenhouse. But of those that require the warmth of a stove I would particularize *Nymphaea cerulea*, on account of the quantity of lovely sky-blue flowers it is ever producing in succession during the season of flowering. I could enumerate many others of equal claims in regard to their attractive qualities, but my object at present is not to give a list, but to remind the lovers of fine plants of these interesting subjects. But I must not omit to speak of *Pontederia azurea*, commonly called crassipes; and of this I shall give the treatment, as practised by myself very successfully, both in obtaining bloom and growth.

Having procured two strong healthy plants, I then filled a large stoneware pot with clean water, not putting in any kind of compost, but simply the water. This was then plunged in the bed of a Macphail pit, in which melons had previously been grown in July. The temperature was maintained by the use of hot manure linings. Whenever the plants emitted side-shoots, they were carefully pinched off, so that the vigour should be wholly concentrated in the parent plant. By this course of treatment I had the satisfaction of beholding beautiful clustered spikes of flowers several times in the months of September and October. The flowers were very like in colour to a neglected plant called *Iris chinensis*. You may wish to learn the reason which induced me to have recourse to the above treatment. In the course of my visits to various gardens, I had noticed that many of the cisterns in which aquatic plants were grown were so fixed that the water contained in them depended for warmth entirely on the heated air of the house, and not from any arrangements by which the house was heated, and then a quantity of soil was generally deposited at the bottom of the cistern for the plants to grow in. The consequence was, in many instances, it was little better than a pool of stagnated water, owing in some measure to decayed roots and other filth that would get intermixed with the soil, and often causing a green slimy matter to accumulate on its surface. Not only in private, but in public gardens have I observed this state of culture—evidence enough that they were not acquainted with the requirements of the plants, or else they were indifferent to their value. On reflection I came to the conclusion that soil was not needed for producing a healthy growth in so confined a space, and that it created impurities in the water, and promoted a sickly instead of a vigorous habit in the plants; and further, that we had some need to study more particularly their geographical position, because numbers of our aquatics grow in very still, clear water, others where the stream is constantly rushing onwards. The consideration of such influences on their cultivation has induced some of our horticultural establishments of late years to resort to a contrivance for imitating to some extent the operations which surround the plants in their native element. Then we should not be unmindful that the water in which the plants are grown requires to be kept at the temperature to which they would be subject in their natural locality. We all know from experience how beneficial bottom-heat is to the greater number of the exotics cultivated in our stoves or forcing houses.

This fact, then, should not be overlooked in relation to exotic aquatics. This is one of the reasons why we had recourse to the applying of warmth to the water by the medium of a Macphail pit, as in the case of the flowering of the *Pontederia*. As I have proved that aquatics may be so managed as to grow and be flowered successfully, depending for sustenance entirely on clear water and heat, I would ask, would not such plants prove a novelty as well as an acquisition to our horticultural exhibitions were they to be exhibited in glass vessels? It may be asked, Why propose glass vessels instead of earthenware for exhibiting such aquatics as need no soil to assist their maturity? My reply is this, I have found, on inspecting the roots, that not only were they remarkable for their beautiful feather-like formation, but they presented to the eye such a rich combination of colour, that, apart from extravagancy of illustration, could only be compared to the transcendent beauty of the rainbow.

THE LADY FERN.



THIS is by some considered the most elegant of all the British filices, but we may reasonably question if it is so. The common Brake and the common *Lastrea* are each so beautiful in their way, that I would not, by any approach to an *ipse dixit*, pronounce the Lady Fern to be superior in beauty to either of them. But there can be no question that it is beautiful, indescribably beautiful, both in the delicate divisions of the fronds, in their graceful arching outlines, and their fresh, lively tone of yellowish green. It needs no praise; it is admired by all who can appreciate elegance of form. And among the thousands of ferns in cultivation, there are but few that can compare with it in captivating grace, and readiness of adaptation to a variety of circumstances.

Athyrium Filix-femina, the "Lady Fern," is usually met with in damp, shady hollows, in peaty soil, or in ancient rocky *dèbris*, where water trickles constantly, or on moist banks, where for many years decayed leaves have collected on a foundation of mellow hazelly loam. When cultivated in the garden, a shady, moist spot is indispensable; and a mixture consisting of equal parts mellow loam, peat, and good leaf-mould will grow it in perfection. It will grow in turfy peat alone most luxuriantly; but if neither peat nor leaf soil are to be had, a mixture of good mellow loam, and one-third part of rotten cocoa-nut fibre, will answer very well, provided moisture and shade are also provided. I have no doubt spent hops, when quite decayed, would very well take the place of leaf soil, where the latter is not obtainable, and I know from experiment that hot-bed dung, when decayed into a clean powdery dust, will suit it as well as any material it was ever planted in; but if it is not rotted to dust it will not do. One of the finest plants I have ever seen is planted in the gravel walk, in a hole made for the purpose, and in

which about a peck of peat and loam was put in for it at the foot of a wall, which forms part of a "modern ruin" in my garden. In this position it is completely shaded, and it now and then gets a little water, but rather by accident than rule. The spot is, however, naturally damp, and the plant forms a luxuriant tuft, and is in a very convenient position to furnish cut fronds for the embellishment of vases and epergnes, when filled with flowers. As a pot plant it is well worthy of care, and will attain to its fullest perfection if kept in a frame all winter, and in summer on a border under the shade of trees. It may, indeed, be left out of doors all winter with other hardy ferns, if plunged to the rim in coal-ashes; and it is a good plan not to cut the old fronds away until the new ones begin to start in spring, as they serve in some degree to protect the crown. When wintered in a frame or pit, it grows earlier in the spring than when left out all winter. I have never known this fern to perish, even if kept without water for weeks together in the summer; but such treatment completely destroys its beauty, and if it is not regularly watered, both over the fronds and at the root, it has not a single attraction for a lover of the beautiful, except perhaps the attraction of sympathy and regret for its forlorn condition. In a fern case, the typical form and all its varieties thrive, especially while young. Generally speaking, they grow too robust after one year's residence in the case, and then have a tendency to become rusty. With care, however, any of them may be kept in cases, and some of the smaller varieties are well adapted for such a purpose, on account of their neatness and singular characters.

There are between sixty and seventy varieties in cultivation, most of which I possess. They make elegant pot plants, and the more robust habited are fine subjects for the front of a shaded rockery. The best of them for a limited collection are the following:—

Conioides.—Bold, spreading, broad, pointed fronds, pinnules crowded and overlapping, and elegantly crisped; very distinct and fine.

Coronans.—Small in growth, almost diminutive; the fronds short, each primary division ending in a neat crispy crest, the terminal crests vertical to the plane of the frond, and therefore conspicuous. Fine for pots and cases.

Coronatum.—A minute variety, with a greatly developed forked crispy tuft terminating every frond, the pinnæ being also forked and crisped. It is well named, as every frond is truly crowned. Fine for pots and cases.

Corymbiferum.—Mr. Sim sent me a plant of this some years ago, when it was a novelty, and that plant has been the parent of hundreds, having been many times divided. It is of free, bold habit, growing as robust as the type, all the pinnæ being crested, and the fronds terminating in crispy crests, which vary somewhat, but are always handsome.

Crispum.—One of the very best of the smallest growing kinds, forming a dense, bushy, and parsley-like mass, the fronds narrow and regularly tasselled, the colour a very pale lively green. I have

a grand tuft of this in the fernhouse which was figured in the January number, and it is also a favourite here for pot-culture.



ATHYRIUM FILIX-FÆMINA, V. CRISPUM.

Diffisum.—Mr. Bull sent me a plant of this elegant variety some four years since, and it has been extensively multiplied from spores. It is of small growth, the fronds lance-shaped, the pinnules curiously toothed, the lowest pair of pinnæ being occasionally developed in an extravagant manner. A very pretty pot or case fern.

Elworthii.—An enlarged and beautified edition of *multifidum*, very finely crested, each frond terminating in a dense flattish crest, of about four inches diameter. The finest of all the large-growing, tufted forms, and suitable for pot and rockery.

Fieldiae.—Very curious and distinct, the fronds spreading slightly, the divisions sometimes short, tooth-shaped, and crossing each other; sometimes enlarged, so as to nearly resemble the pinnae of the type, and usually towards the summit crowded, toothed, and overlapping.

Frizelliae.—One of the most distinct, and at the same time most singular, the divisions being kidney-shaped, deeply toothed, and overlapping, the fronds being as much like frills as ferns. It is curious that this frizelled fern was discovered by Miss Frizel, and the lady may well be proud of having her name associated with it. Fine for ferneries under glass and for pots.



ATHYRIUM FILIX-FÆMINA GRANDICEPS.

Grandiceps.—This is the most crispy-crested of the series, and is really a remarkable plant. Mr. Sim sent me a mite of it three years ago; this is now a beautiful specimen, which with others has been several times exhibited. It is of dwarf habit, the fronds narrowish, lance-shaped, terminating in many short-branched divisions, each of which is densely crested. To say that it resembles parsley is to

compare Hyperion to a satyr, for the handsomest sample of parsley ever seen would be coarse and vulgar by the side of it. Charming or pots and cases.



ATHYRIUM FILIX-FEMINA MULTIFIDUM.

Grantiæ.—Broad leafy fronds, the divisions overlapping, and the ultimate pinnules so crowded, crispy, and dense, as to give the idea of a felted mass of leafage. It is very distinct and fine, and the best place for it is a pot or fern case.

Multifidum.—A fine bold form, differing from the type chiefly in

the tassel-like crests of the pinnae which fringe all the fronds in a very elegant manner. Fine for pots or out-door fernery.

Purpureum.—The true variety is that which Mr. Sim catalogues under this name, and which is a form of incisum. It is of robust growth, with elegant (typical) divisions, the stipes showing a fine purple colour. By distinguishing this particular form as the "true variety," my object is to deprive of the name "purpureum" the purple-stemmed varieties which fern collectors meet with in their rambles, for the simple reason that they are usually far inferior in colour and structure to the one which Mr. Sim has secured by extensive collecting and careful selecting. This is a noble fern for the out-door rockery.

Ramo-cristatum.—A very peculiar and beautiful variety, of diminutive growth. It combines the elegant tasselled character of the crested form of *Lastrea Filix-mas*, with the dense flattened crests of *coronatum*. A charming subject for pots and cases. S. H.

STRAWBERRY GROWING IN KENT.



N Kent hundreds of acres are devoted to the growth of this fruit, and sometimes in one year a forest is converted into a strawberry plain. In the latter case the labour connected with establishing a plantation of strawberries is great. First, the axe has to be used, the large timber becoming the property of the landlord; then the mattock has to be applied to grub up the underwood, which is a complete thicket, and much of this is burnt on the ground. When duly prepared, the land is planted with strawberries, an operation which generally takes place in the autumn. The distance of 2 ft. 6 in. is allowed between the rows, and 1 foot 6 inches between the plants. This leaves a clear space round the latter, and, owing doubtless to not over-crowding, the plants are seldom higher than six inches, and bear enormous crops. Some growers keep their ground so clean that a barrow-load of weeds could not be picked off a dozen acres. Before the fruit begins to ripen, straw is neatly placed round the plants; if it is long it is cut. After all the fruit is gathered, the straw is raked off when dry, and stacked for another year; half-decayed dung is also used, and put on early in the spring, but the supply is too limited for its use to be general, and straw, especially when new, has a decidedly better appearance.

The plants are renewed every four or five years. The sorts chiefly grown are Eleanor, Goliath, Alice, Elton Pine, British Queen, and Sir Charles Napier. Alice is becoming a favourite. Another variety called Count is highly spoken of; this I believe to be Comte de Paris.

In my rambles I was curious enough to inquire who grubbed up woods and planted strawberries in their place? To this I could not get a satisfactory answer, but I was informed that strawberries proved the better crop. At first only a few square yards were converted, now there is a colony of strawberry growers, and in some instances the land has been under strawberries eight or nine years at least. What strikes one most is the variability of the soil—one soil contains about forty per cent. clay, another patch may be termed sandy loam, and a barrow-load of stones might be picked off a few square yards. Another kind I noticed to be much impregnated with humus or peat. A handful taken up and pressed presented an appearance like that of the ball of a plant potted in half loam and peat, with a mixture of sand; and I think I shall not err if I say that it contained fifty per cent. of peat. As regards crops, their difference in appearance is not great; those on the first-mentioned soil appeared the best.

Many will doubtless be anxious to know if this branch of horticulture pays. Your correspondent Mr. Forsyth's calculation would perhaps not be far off the

mark if the growers could sell all at the first railway station, but the produce has to be conveyed to London, a distance of sixteen or seventeen miles, and sold wholesale; yet strawberry-growing pays. In the first place cultivators pay the gatherers 25s. per week, and a great boon to the working man these strawberry-grounds are. An owner of fifty acres perhaps employs from twenty-five to thirty persons, chiefly men, for two or three months, while a farmer with an equal amount of land would employ no more than two or three, paying them about 15s. per week. Strawberry-growers no doubt find themselves pretty well repaid, for it was hinted to me that the owner of about fifty acres had cleared £1500 last year.

Some might surmise that the past week being so showry would be detrimental to the strawberry-grower, but it is quite the reverse. The rain has caused the fruit to swell to a great size; the flavour, however, is deteriorated, but as they are sold by measure, size is to the grower's advantage. All the fruit stands out from the leaves, and it is gathered at all times, unless it is really too wet for the men to stand out; if left a week ungathered only a few would decay. If an order is given for a large quantity for preserving, of course in that case the weather is studied a little.

I find that some of the growers have planted filberts amongst the strawberries. These stand about ten feet apart. They are probably actual owners of land that do this, or otherwise hold it on lease. This again will prove very profitable, and when the ground has got tired of its burden of strawberries, the filberts will be in good bearing order to take their place. Fine orchards might be formed in this way, but as in most cases the land is liable at any time to be taken from the tenant, he would not, as a rule, incur that expense.—W. P. R. in *Gardener's Chronicle*.

NEW PLANTS.



EULOPHIA VIRENS, *Greenish Eulophia* (*Bot. Mag.*, t. 5546).—Orchideæ.

A comparatively unattractive, though interesting orchid, introduced by Mr. Thwaites, from Ceylon. The pseudo-bulbs are roundish, bearing several grassy leaves; sepals and petals nearly equal, yellowish-green; lip longer than the petals, white, with purple streaks.

SCILLA COOPERI, *Cooper's Squill* (*Bot. Mag.*, t. 5580).—Liliacæ. This is a most valuable addition to the long list of beautiful and much-prized bulbous-rooted flowering plants for which we are indebted to the Cape of Good Hope. The bulb is roundish, and the outer scales are of a purple colour. The leaves are grass-like and elegant, of a bright light green, with brown spots near the base. The spike is many-flowered, the flowers small, crowded, the colour lively rose purple.

WARSCIEWIZELLA VELATA, *Veiled Warscewizella* (*Bot. Mag.*, t. 5582).—Orchideæ. A beautiful orchid, introduced from New Granada by Messrs. Low and Co., through their collector, Mr. H. Blunt. Its exact position is matter of doubt, and it may some day be classed with *Huntleya*. It grows a foot high, has no pseudo-bulbs; leaves in tufts of five, penduncles one-flowered, sepals and petals an inch long, yellowish-white; lip very large, same hue as the petals, but with a purple margin and deep purple streaks on the disk. The plant is unquestionably well worthy of cultivation, than which nothing can be more simple; a moderately warm house and protection from the sun's rays being all that is required.

BEGONIA GERANIODES, *Geranium-leaved Begonia* (*Bot. Mag.*, t. 5583).—A small and pretty species, with reniform leaves and elegant nodding white flowers. A very pretty greenhouse plant.

POLYSTACHYA PUBESCENS, *Hairy-stemmed Polystachya* (*Bot. Mag.*, t. 5586).—Orchideæ. A pretty orchid, of diminutive growth, believed by Mr. Bateman to be the *Epiphora pubescens* described by Lindley twenty-five years ago. It is widely distributed in South Africa. The whole plant is less than a foot high, pseudo-bulbs distaff-shaped, clothed with sheathing bracts, and bearing two or three oblong lanceolate leaves. Flower spike hairy, erect, and many-flowered; flowers closely massed together, of a bright golden colour.

ANGRÆCUM CHAILLUNUM, *M. du Chaillu's Angraecum* (*Bot. Mag.*, t. 5589).—Orchideæ. A very distinct species, sent from the Gaboon by M. du Chaillu; also sent from the Nun River, on the same coast, by M. Gustav Mann, collector for the

Royal Gardens, Kew. The plant is a small stout epiphyte, stems four to ten inches long, as thick as the little finger; leaves loosely imbricate, an inch and a half broad, leathery. Racemes drooping, lax-flowered; flowers white, with a pale greenish tinge.

ANTHURUM SCHERZERIANUM, *Scherzer's Anthurium* (*L'Illust. Hort.*, t. 484).—*Orontiaceæ*. This is the most beautiful of the noble genus to which it belongs, and has, during the past two seasons, been so frequently exhibited, as to have acquired a high renown as an ornamental plant. It is a native of Guatemala and Costa Rica. The leaves are oblong acuminate, six inches long, leathery, dark green; the inflorescence consists of a broad oblong ovate spike, of a brilliant scarlet colour, and a coiled spadix of a bright orange red. Its abundant flowering, brilliant colours, and short habit, are characters of the highest importance to all cultivators of ornamental stove plants.

LOBELIA CORONOPIFOLIA, *Upright Raceme-flowered Lobelia* (*L'Illust. Hort.*, t. 485).—*Lobeliaceæ*. This pretty herbaceous plant was introduced to this country in 1752, and again in 1787, and again in 1812. It appears to have been lost soon afterwards in each case. It has been again introduced by Messrs. Backhouse and Son, of York; and as there are now many collectors who value beautiful herbaceous plants, it may acquire a permanent place in English gardens. It is of robust habit, with narrow, obscurely-lobed leaves, and upright racemes, bearing from four to six large flowers, of a clear azure colour.

ROSE (T.) ISABELLE SPRUNT (*L'Illust. Hort.*, t. 486).—*Rosaceæ*. A new and beautiful tea rose, raised by Mr. Buchanan, of New York. It is of a rather slender and free-growing habit, with glossy dark green leaves and purplish leaf-stalks. The flowers are large, with very broad petals, which roll back in the way of *Devoniensis*; the colour primrose-white, deepening at the base to canary-yellow.

THE GARDEN GUIDE FOR AUGUST.

FLOWERS OF THE MONTH.—*Greenhouse*: *Anacampseros angustifolia*, *arachnoides*, *poliphylla*, *varians*; *Senecio speciosus*, and *venustus*; *Crassula bibractea*, *filicaulis*, and *tetragona*; *Billardiera scandens*, *Mesembryanthemum albinotum* and *bidentatum*; *Aloe depressa* and *nobilis*; *Hakea illicifolia*, *Adesmia viscosa*, *Anomatheca cruenta*, *Adamia versicolor*, *Anagallis linifolia*, *Aloysia citriodora*, *Amphicoma arguta*, *Babiana villosa*, *Ricinus rutilans*; *Fuchsias*, *Zonale pelargoniums*, the pendulous *Celosias*, several *Salvias*, *Plumbagos*, and *Lobelias* are now in their prime. —*Garden*: *Eriothera fruticosa*, *Pentstemons*, *Jaffrayanus*, *angustifolius*, *glabrum*, *eriantherum*, and *barbatus*; *Sabbattia campestris*, *Agathyrus Sibericus*, and *Tartaricus*; *Agrostemma suecica*, *Eryngium aquifolium*, *Inula glandulosa*, *Silene maritima*, *Aconitum versicolor*, *Dianthus fragrans*, and *serotinus*, *Delphinium moschatum* and *intermedium*, *Plumbago Europæa* and *Larpenæ*, *Aster macrophyllus*, *abbreviatus*, and *multiflorus*; *Globularia cordifolia*, *Glauceum fulvum*, *Eriothera macrocarpa*, *Rumex sanguinea*, *Teucrium Hyrcanicum*, *Eryngium aquaticum*. —*Ericas*: *vestita*, *mutabilis*, *jasminiflora*, *dichromata*, *Eweriana*, *globosa*, *obliqua*, *prægnans*, *Aitoniana*, *Irbyana*, *aurea*, *curviflora*, *suaveolens*, *Swainsonii*, *formosa alba*, *elata*, *alopecuroides*, *cruenta*, *Banksiana alba*, *margaritacea*, *ampullacea rubra*, *taxifolia*, *incana rubra*, *laricina*. —*Orchids*: *Cynoches Loddigesii*, *C. ventricosum*, etc., *Epidendrum aloifolium*, *Cymbidium pendulum*, *Epidendrum rhizophorum*, *Cypripedium barbatum*, *C. Farrieanum* and *Lowii*, *Dendrobium Paxtonii*, *Galeandra Bauerii* and *cristata*, *Huntleya melegris*, etc., *Miltonia bicolor*, *M. candida*, *M. spectabilis*, *Peristeria elata*, *Burlingtonia Knowlesii*, *Lælia autumnalis*, *L. majalis*, *Oncidium pulchellum*, *O. Batemannii*, *O. flexuosum*, *Promeneia stapeloides*, *Cattleya granulosa*, *C. Harrisoniæ*, *C. labiata pallida*, *Odontoglossum grande*, *O. phalænopsis*, *Saccolabium Blumei* and *B. major*, *S. furcatum*, *Sobralia liliastrum*, *Stanhopea Martiana*, *S. insignis*, *tigrina*.

GARDEN WORK.

Kitchen Garden.—Winter spinach and winter greens require attention. The first to be sown on beds deeply dug and well manured; the second to be planted out

from seed-beds during showery weather. Earth up celery, take up all ripe crops of potatoes. About the 12th, sow cauliflower and cabbage.

Fruit Garden.—Lose no time in securing rooted runners of strawberries, and get them planted in well-prepared ground at the very first shower that happens. By doing this early and well, there will be secured a good crop of fruit on the young plants next season. As for all other fruits, there is little to do but to gather and eat them, or store them as they ripen.

Flower Garden.—The majority of people will prefer now to rest and be thankful, and happily there is not much need of hard work, for the grass makes little growth, and mowing is therefore not a frequent task, and beds and borders only need a little watching, to keep them gay. One of the most important items of this month's business is to mark down in the garden-book the names of all the bedders of which stock is required for next year, and to begin propagating, if a beginning has not been already made. As for geraniums, they may be increased *ad infinitum* by putting the cuttings in an open border; if rather sandy, it is an advantage. In fact, the *very best* bed for propagating is one consisting chiefly of sandy road-drift. The cuttings may be three or four inches apart, and, if put in on the 1st of August, will be good plants for potting on the 1st of October. But the 1st of July is a better date to begin than the 1st of August. Calceolarias cannot be propagated till next month, for the plants are not growing at the base now. Roses also may be multiplied, by putting short cuttings, selected from the shoots of this season, in a bed of sandy soil, in a frame, keeping them shaded and sprinkled. Nine-tenths will root with ordinary care, and ninety-nine hundredths where the cultivator is quite *au fait* at propagating. Budding on brier and manetti stocks may be carried on as last month. It is a good time to buy in new roses, and plant them, as they will be well established before winter, if taken care of, as to shading and watering, for three weeks after planting. Pinks and carnations ought to be well rooted now, and if so, they may be separated from the old plants, and be planted out where they are to remain. Give chrysanthemums plenty of water.

Greenhouse and Stove.—Many of the early-struck geraniums will now be flowering freely. Pelargoniums will want a shift to larger pots, and old plants that have begun to grow freely, after having been cut down, may be put into small pots, in fresh soil; but it is well to shift a few of the early flowering kinds, such as Gauntlet, Brilliant, and Dr. André, into larger pots, without disturbing the roots, as this plan insures an early bloom in winter. Cinerarias and primulas should be growing freely. Cuttings of evergreen shrubs may be put in anywhere in the shade, but better in frames, as here they can be shaded, and sprinkled, and have protection during winter. Stove plants going to rest to be kept rather dry, but all growing subjects to have plenty of water. Use fire-heat only as necessity compels—the less of it the better.

NEWS OF THE MONTH.

CRYSTAL PALACE ROSE SHOW, JUNE 23RD.—The weather had a great influence on this show, roses having a very wretched appearance until June set in. The mild winter was followed by a cold spring, and, at the time when roses wanted pruning, east winds and sharp frosts prevailed. But after the heavy rains of June they made wonderful progress, but were later than ordinary, in some districts a fortnight; in others a week or ten days. Had the show been held about the 30th, instead of the 23rd, it would certainly have been more satisfactory; but dates must be fixed long before any one can say what sort of season it is likely to be. As to their quality, generally speaking, it was certainly below the average. They were wanting in size, in substance, in finish, and sometimes in colour, and there was not one stand in the whole show in which one could not find faulty flowers. Many of the best varieties were to be seen showing eyes or curled petals, or if not specifically defective, were wanting in that completeness and grandeur which we usually designate by the term "carriage," and so the enjoyments proper to the inspection of some thousands of cut roses, were dashed with regrets that a large proportion of them failed to sustain the characters given them in books, and the fame inherent in their genea-

logy and introduction to the floral world. Particularly noticeable to genuine rosarians was the absence of certain favourites, or their appearance in so few instances as to suggest that their popularity is past. H. P.'s General Jacqueminot and Jules Margottin were actually more scarce than several varieties that have only been out a year or two. Madame Vidot was shown in several stands, but not in any case good; so Mrs. Rivers was tolerably plentiful, and always poor. Prince Camille de Rohan was shown in plenty, so were Baron A. de Rothschild, Beauty of Waltham, John Hopper, Caroline de Sansal, Souvenir de la Malmaison, Centifolia rosea, Senateur Vaisse, Madame Victor Verdier, Charles Lefebvre, and others that are known both for exquisite beauty and their reliableness. This of course brings us to the results of the competition, and we can do no better than say that in the grand class for ninety-six, Mr. Keynes, of Salisbury, took first prize with a very nice lot of flowers, the names of which may be considered to represent the best varieties in cultivation.

Mr. Keynes's First Prize Ninety-six.—General Jacqueminot, Marechal Niel, Kate Hausburg, Gloire de Vitry, Victor Verdier, Alphonse Belin, Devoniensis, Alpaide de Rotalier, Beauty of Waltham, Madame Willermoz, Madame Emaine, Countess Barbantanne, Olivier Delhomme, Souvenir d'un Ami, Louis Van Houtte, Madame Sertot, Charles Lefebvre, Centifolia Rosea, John Standish, Moiré, Comte de Nanteuil, Mdle. Bonnaire, Admiral La Peyrouse, Adam, Souvenir de Charles Montault, Louise de Savoie, Lord Macaulay, Belle Normandie, Vicomte Vigier, Madame Furtado, America, Madame Clemence Joigneaux, Madame Rivers, Maurice Bernardin, Sombreuil, Colonel de Rougemont, Le Baron de Rothschild, Louise Magnan, Joseph Fiala, Gloire de Dijon, Bernard Palissy, La Ville de St. Denis, Gabriel de Peyronny, Jules Margottin, Jaune d'Or, Comte de Paris, Clement Marot, Souvenir de William Wood, Souvenir d'Elise, Leopold Premier, Monte Christo, Achille Gonod, Prince Camille de Rohan, Mansais, Marechal Souchet (Damaizin), Madame Moreau, Madame Charles Wood, Duchesse d'Orleans, Madame Victor Verdier, Gloire de Mousseuses, Madame Caillat, Anna Alexieff, Duc de Rohan, Triomphe de Rennes, Gloire de Santhenay, Vicomtesse Douglas, Anna de Diesbach, Charles Lawson, Monsieur de Pontbriant, Marie Bosset, Francois Lacharme, Triomphe de Terra de Roses (a rose of immense size, finely cupped, and by no means coarse, the petals beautifully arranged, colour dull purplish-rose), La Brillante, Caroline de Sansal, John Keynes, Michael Bonnet, L'Eblouissante, Marguerite St. Amand, Pierre Notting, Homere, Duc de Wellington, Madame Hector Jacquin, John Hopper, Souvenir de la Malmaison, La Reine, Madame La Boute (T.), Xavier Olibo, Cloth of Gold, Madame Pauline Villot, Madame Boll, Prince Henri de Pays Bas, Comtesse de Chabillant, Madame Vidot, Baronne de Wassanaer, Madame Charles Wood. Messrs. Paul and Son were second in this class, the Cheslunt Nursery being badly situated for an exhibition fixed at an early date in such a backward season. The positions of these two great exhibitors were precisely the same in the class for forty-eight, Mr. Keynes winning with the help of his southern climate, Messrs. Paul and Son coming in second.

Mr. Keynes's First Prize Forty-eight.—This was the "three trusses" class, and made a splendid show; the varieties were Centifolia rosea, Madame Victor Verdier, Caroline de Sansal, Mdle. Amelia Halphen, Madame Sertot, Madame Clemence Joigneaux, Comtesse de Chabillant, Lord Macaulay, Madame Charles Verdier, Gloire de Mousseuses, Moiré, Charles Lawson, La Reine, Maurice Bernardin, Duchesse d'Orleans, Beauty of Waltham, Souvenir d'un Ami, Jules Margottin, Cloth of Gold (superb), Duc de Rohan, America (fine), Madame Moreau, Madame Vignerot, Victor Verdier, Souvenir de la Malmaison, Kate Hausburg, Louise de Savoie, Triomphe de Rennes, Souvenir de William Wood, Belle Normandie, Baron A. de Rothschild, Gloire de Dijon, Senateur Vaisse, John Hopper, Marguerite St. Amand, Pierre Notting, Devoniensis, Madame Charles Wood, Madame Vidot, General Jacqueminot, Gloire de Vitry, Vicomte Vigeur (fine), Madame Rivers, Senateur Vaisse.

Messrs. Paul and Son's Second Prize Forty-eight.—Madame Crapelet, Xavier Olibo, Monsieur Boncean, Souvenir de la Malmaison, Jean Goujon, La Fontaine, Louise Margottin, Lord Clyde, Pierre Notting, Catherine Guillot, Souvenir d'un Ami, John Hopper, Madame Charles Verdier, Baron A. de Rothschild, Princess of Cambridge, Monte Christo, Madame Julie Daran, Jules Margottin, Madame Rivers, Madame Boll, Le Rhone, Madame Clemence Joigneaux, Francois Lacharme, Mdle.

Bonnaire, Madame Charles Wood, Marechal Niel, Centifolia rosea, Madame Victor Verdier, Marechal Vaillant, Madame Furtado, Senateur Vaisse, Gloire de Dijon, Charles Lefebvre, William Griffith, La Brillante, Madame Villermoz, Prince Camille de Rohan, Comtesse de Chabillant, Madame Boutin, Devonienensis, Maurice Bernardin, Victor Verdier, Madame Fillon, Olivier Delhomme, Modele de Perfection, and Lord Macaulay.

In the Amateurs' Classes there was a less spirited competition than we expected, though small collections must have suffered much from the storm of the preceding Thursday. Mr. Hedge took first place in the class for thirty-six; and a very pretty lot they were, both in selection as to colours, and in the finish of the varieties. Mr. Chard was second; Mr. Moffat third. In the Amateurs' Class for twenty-four, Mr. Moffat, gardener to Hon. Mrs. Maynard, Dunmow, first, and very creditably so; Mr. Hedge, second; Mr. Chard, third. In the class for eighteen, Mr. Hedge, first; Mr. Moffat, second; Mr. Dennis, gardener to H. S. Hayward, Esq., Hurst Green, third. In the class for twelve, Rev. V. Knox Child first, with a very choice dozen; Mr. Hedge, second; Mr. Ingle, third. To enumerate the varieties in each of these stands would consume more space than we can afford; but it will be proper to name as conspicuous for their beauty, and as appearing most frequently, the following favourites: General Jacqueminot, Le Rhone, Mathurin Regnier, Beauty of Waltham, Cloth of Gold, Marechal Niel, John Hopper, Victor Verdier, Madame Victor Verdier, Emile Dulac, Comtesse de Courcy, Triomphe de Caen, Prince Camille de Rohan, Princess of Wales, Madame Bravy, Maurice Bernardin, Niphotos, Senateur Vaisse, L'Enfant Trouvé, Charles Lawson, Madame Boll, Pauline Lanzezeur, Celine Forestier, Comte de Manteuil, Madame Boutin, Souvenir d'un Ami, Caroline de Sansal, Olivier Delhomme, Madame Vidot, Comtesse de Chabillant, Charles Lefebvre, Mdle. Bonnaire.

ROYAL BOTANIC SOCIETY, THIRD GREAT SHOW, JULY 4.—At this exhibition, there was an unusual plenty of fine foliage plants, comprising many scarce species of palms, zamias, and cycads, besides the usual display of caladiums, dracenas, and other kindred subjects. Orchids were not plentiful, but there were some nice collections. Pelargoniums were plentiful and fine, and there was a beautiful display of zonales, justifying all that has been said in praise of these plants for late summer and autumn decoration. A few azaleas in good condition were to be seen in collections of stove and greenhouse plants; and there was a delightful sprinkling of meritorious novelties, large and small. The show of fruit was excellent, and rendered additionally attractive by the association with it of an abundance of cut flowers.

Pelargoniums.—In the trade class for nine, Mr. John Fraser was the only exhibitor. His plants were large and fresh. Mr. Nye brought a grand nine in the amateur class, and Mr. Ward, of Leyton, followed close with a similar group. Mr. Wiggins also competed. In these collections the following were conspicuous for their fine characters:—Modestum, Princess Louise (prettily spotted), Pericles, Flambeau (well named for its fiery colour), Lilacina, Amy, Norma, Desdemona, Bessie, Royal Albert, Malbrook, Favourite, Beacon, Mdle. Patti, Leander, Caractacus (very distinct vivid rosy purple), Fairest of the Fair, Perdita, International, Lord Clyde, Spotted Gem, Fair Rosamond, Lord Chancellor. *Pelargoniums* of 1863 or 1864 were sparingly exhibited. The only exhibitors in this special class were Mr. John Fraser and Mr. Wiggins. Mr. Fraser had a fine John Hoyle, which retains as a specimen all the noble characters which won for it golden opinions as a seedling. The flowers are large, exquisitely formed, have a most refined finish, and the colouring is heavy and grand. In the same lot, Flourish, Amy, The Rival (a splendid variety), The Maid of Honour (in the way of Lilacina, a charming thing), The Prince. In Mr. Wiggins's lot, John Hoyle, Alba formosa, Exhibitor, Eurydice, Isabel, Diana. *Fancies* were few, but good. Mr. Fraser had a charming half-dozen. Mr. Wiggins put up a nice six. The varieties in these two lots were Bridesmaid, Acme, Hebe, Helen, Lillie, Countess of Waldegrave, Mrs. Wright, Princess Alexandra, Lady Craven, Roi des Fantaisies.

Zonale and other Geraniums.—Mr. Windsor, gardener to J. R. Ravenshill, Esq., Walthamstow, had a grand six trained out in convex outline, and in splendid condition as to leaf and bloom. They were, Eugenie Mezard, Highgate Rival (a fine salmon kind), Prime Minister (a first class broad-petalled scarlet), Princess (salmon flesh), Sir Robert Peel (a fine scarlet), Virgo Marie (a better white for specimens than Madame Vaucher). Mr. Catlin, gardener to Mrs. Lermette, Finchley, had

Stodhartii (a fine salmon), *Admiration* (scarlet), *Scarlet Globe*, *Eugenie Mezard*, *Madame Vaucher*, and *Evening Star* (a scarlet of middling quality). Mr. Logan, gardener to C. Kelly, Esq., Finchley, had *Brilliant* (admirably done), *Tintoret* (a nice broad-petalled red), *Princess of Prussia* (not good enough for specimen-growing), *Conqueror of Europe*, *Vivid*, *Comte de Morny*. Mr. Hawes, gardener to J. A. Noble, Esq., Fortis Green, Finchley, had *Madame Vaucher*, *Una*, *Monsieur Martin*, *Eugenie Mezard*, *Admiration*, *Princess of Prussia*.

Fuchsias.—Mr. Brockwell, gardener to Mrs. Henry, Edmonton, put up six large specimen fuchsias of perfect pyramidal outline. They were *Wiltshire Lass*, *Madame Cornelissen*, *Conspicua*, *Sir Colin Campbell*, and *Sensation*. Mr. Weston, gardener to D. Martineau, Esq., Clapham Park, had half-a-dozen smaller plants in equally perfect finish. The varieties were *Wiltshire Lass*, *Conqueror*, *Reine Blanche*, *Minnie Banks*, *Conspicua*, *Lord of the Isles*. Mr. Filee, gardener to J. Strutter, Esq., Clapham Park, had *Rose of Castile*, *La Crinoline*, *Souvenir de Chiswick*, *Fair Oriana*, *Annie*, *Madame Cornelissen*.

Verbenas.—Mr. C. J. Perry, of Castle Bromwich, put up a collection of cut flowers, three trusses of each, which attracted as much attention and admiration as anything else in the show. *Harry Turner* (deep rose-lilac), *Foxhunter* (fine scarlet), *Cleopatra* (large carmine, a grand pip), *Fairy* (delicate flesh, pink eye), *Firefly* (vivid scarlet), *Cato* (pinkish-flesh), *Charles Turner* (deep flesh, carmine eye), *Snowball* (white shading blush), *Modesty* (rosy-flesh, carmine eye), *Blue Queen* (a grand bluish-purple, large primrose eye), *Emperor* (a curious shade of crimson), *Seedling reddish purple*, large primrose eye), *Pink Queen* (a curious shade of pink-cerise, yellow eye), *Mrs. Dean* (flesh deepening to pink, a mottled flower, pleasing, but scarcely first-rate), *Pink Perfection* (vivid cerise pink), *William Dean* (like *Blue Queen*, but a trifle more colour, very fine), *Charles Perry* (rose deepening to carmine), *Champion* (deep crimson), *Auricula* (deep crimson shading to plum, extra, large lemon-coloured eye—a grand flower, very distinct, and will make one of the loveliest pot plants ever seen), *Harry Law* (carmine, large eye), *Seedling* (scarlet like *Foxhunter*), *Pioneer* (purplish red, distinct), *Ruby* (cerise with carmine shade), *Wonderful* (deep crimson, fine eye).

Collections of Fruit were numerous, and comprised in all cases good samples. The best collection came from Mr. Rawbone, gardener to C. M. Campbell, Esq., Ashbourne, Derbyshire, who sent a fine *Queen pine*, 4½ lb., a *Trentham hybrid melon*, three bunches of *Black Hamburgh grapes*, 7½ lb., three of *Golden Hamburgh*, 7 lb., *Royal George peaches*, *Elruge nectarines*, and *Keen's seedling strawberries*, etc. Second, Mr. Robinson, gardener to R. Benyon, Esq., Reading, with gold and black *Hamburgh grapes*, *Grosse Mignonne peaches*, *Elruge nectarines*, *President strawberries*, *Golden Perfection melon*, *Baumann's Early May cherries*, etc. Mr. C. Turner contributed a collection comprising *strawberry Dr. Hogg*, a new seedling raised by Mr. Bradley. It belongs to the *British Queen* section, has true *Queen* flavour, is a better bearer and colours more regularly than its parent. The samples shown fully justified the character given it by the raiser.

Pines.—Mr. Hannan, gardener to R. T. Crayshaw, Esq., Merthyr Tydfil, took first prize for four fine fruits, two of them being *Providences*, 9 lb. and 8 lb., and two *Black Jamaicas*, 3 lb. and 2 lb. 12 oz. Mr. Young, gardener to C. Bailey, Esq., Aberaman, second, with two *Providences*, 7 lb. 6 oz. and 6 lb. 6 oz., and two *Queens*, 4 lb. 6 oz. and 4 lb. 2 oz. All these were handsome, even in pip, and in perfect ripeness. A smooth-leaved *Cayenne*, weighing 5 lb. 10 oz., and an *Enville*, 4½ lb., were eminently creditable to Mr. Miles. Mr. Young put up two noble *Queens*, a medium-sized *Providence*, and an excellent *Black Jamaica*. In the class for *Providence*, first, Mr. Hannan, 10 lb., but not handsome; second, Mr. Young, of Aberaman, nearly 9 lb., and a better shaped fruit. In the class for *Queens*, Mr. Ward, gardener to E. N. Miller, Esq., Bishop's Stortford, stood first with a fruit that distanced by a considerable length all others shown in the class, weighing 7 lb. 6 oz. Mr. Ward also put up twelve *Queens*, the united weights of which were 63 lb., being an average of 5 lb. 4 oz. each.

Black Grapes.—Generally speaking, black grapes were good both in size and colour, and white grapes were good in size of bunch and berry, but far from perfect in colour. Mr. Meredith, of Garston, near Liverpool, again justified all that has been said about his skill in grape-growing by presenting three dishes, consisting of *Black Hamburgh*, *Black Prince*, and *Trentham Black*, which were not to be equalled

by any other black grapes in the show, whether for size or colour. The best basket, containing not less than 12 lb., came from Mr. Meredith, who sent superb samples of Black Hamburgh, distancing all competitors; second, Mr. Tansley. But in the class for three bunches of Black Hamburgs, Mr. Meredith met his match in Mr. Clements, of East Barnet, who were placed equal first. To say that Mr. Meredith's were finely finished is less necessary than to say that Mr. Clements stood equal with bunches that were irreproachable, both as to size and the fine colour and bloom of the berries. Mr. Turnbull, gardener to the Duke of Marlborough, took first place in the class for Black Prince with finely-finished samples, colour and bloom perfect. Mr. Allport, gardener to H. Akroyd, Esq., put up West's St. Peter's, finely grown. Mr. Meredith sent a bunch of Black Hamburgh weighing 7 lb. 5 oz. It was in perfect colour and unbroken bloom.

White Grapes were generally defective. But a bold exception must be made in favour of the three bunches of Muscat of Alexandria shown by Mr. Turner. These were grand bunches, fine berries, and the colour the exact shade of greyish amber at which this fine grape is perfect for the table. Mr. Record, gardener to Colonel Lloyd, Hawkhurst, took first place in the class for *any dish* with a huge bunch of Marchioness of Hastings, 8 lb. 3 oz.; this is a good white grape, small in the berry, and rarely ripens a nice colour; second, Mr. Lynn, gardener to Lord Boston, Hedsor, with Buckland Sweetwater, finely grown, but wanting ten days to finish them; third, Mr. M. Henderson, with good bunches of white Muscadine.

Peaches and Nectarines.—The best four dishes came from Mr. Allen, gardener to Captain Clegg, who had fine samples of Bellegarde and Noblesse peaches, and Scarlet and Bragnon nectarines, all of good size and good in colour. Second, Mr. Masters, gardener to Earl Macclesfield, who had Royal George and Early Grosse Mignonne peaches, and Elruge and Violet Hative nectarines. The best two dishes came from Mr. Sawkins, gardener to J. Smith, Esq., who had Royal Charlotte and Violette Hative peaches. They were equally remarkable for size, perfection, and colour. In other dishes were fine samples of Royal George, Galaude, and Violette Hative peaches, and Violette Hative nectarines.

Melons were plentiful. Equal first, for *green-fleshed*, Messrs. Miller and Weir. The first had Combe Abbey Hybrid; the second had Hybrid Cashmere. Equal second, Messrs. Ross and Record. The first had Golden Perfection, and the second had Conqueror of Europe. *Scarlet-fleshed*: First, Mr. Weir, with Windsor Prize, a handsome and finely-flavoured variety. Equal second, Messrs. Goldsmith and Belch, with Scarlet Gem.

Strawberries.—The best four dishes came from Mr. Widdowson. The varieties were Empress Eugenie, Sir Charles Napier, President, and Oscar, the four finest show strawberries in existence, and the third in the list one of the handsomest and most useful grown. Second, Mr. Turner, with Dr. Hogg, Leon de St. Lannier, a large coxcomb-shaped, finely-coloured fruit, Sir Joseph Paxton, and Sir Charles Napier. Third, Mr. McIndoe, with Comte de Paris, Marguerite, Empress Eugenie, President. Fourth, Mr. Lydiard, with British Queen, Sir Charles Napier, Sir Joseph Paxton, and Comte de Paris. Mr. Horwood sent fine samples of Kittley's Goliath, and Mr. Bailey, of Shardeloes, sent a seedling called Princess Mary, which is reported to be prolific, and to possess a first-rate pine flavour.

BIRMINGHAM ROSE SHOW, THURSDAY AND FRIDAY, JULY 5 AND 6.—The time chosen for this exhibition suited the season and the roses better than the date of any other similar exhibition of the year. Roses were in a better state to cut at than on the date of the Crystal Palace exhibition, and it was the best affair of the kind that has yet taken place, because of the abundance and the perfection of the flowers. The schedule, too, was much better planned than we of the metropolitan district are accustomed to; the great trade classes extending to seventy-two, instead of the customary and cumbersome ninety-six; and in both the trade and amateur sections there were classes adapted to place competitors as nearly as possible on a level as to geographical advantages. In the great trade class open to the United Kingdom, the awards were, 1st, Messrs. Paul and Son, Cheshunt; 2nd, Mr. Cranston, King's Acre, Hereford; 3rd, Mr. Cant, of Colchester.

Messrs. Paul and Son's First Prize Seventy-two.—Eugene Boucier, Narcisse, Emotion, Lord Clyde, Beauty of Waltham, Le Rhone, Turenne, Souvenir d'Elise, Lælia, Madame Julie Daran, Captain Roguat, Charles Lawson, Gen. Jacqueminot, John Hopper, Gustav Bonnet, Lord Macaulay, Marechal Niel, Madame Charles

Wood, Madame Vigneron, Francois Louvat, Madame Victor Verdier, Duchesse d'Orleans, Achille Gounod, Arles Dufour, Madame Eugene Verdier, Olivier Delhomme, Lælia, Comtesse de Paris, Catherine Guillot, Lord Raglan, Baron Gonella, Xavier Olibo, Duchesse de Morny, Dr. Andry, Triomphe de Rennes, Baron A. de Rothschild, Madame Derreux Douville, Caravenne de Mines, Devoniensis, Marechal Souchet, Gloire de Vitry, Duc de Rohan, Comtesse Chabillant, Belle Normandie, Maurice Bernardin, Prince Camille de Rohan, Gloire de Santhenay, Lamarque, Alfred Colomb, Mdle. Joigneaux, Marechal Souchet, Comte de Nanteuil, Marechal Vaillant, Madame Rousset, Vicomte Vigier, Alba Rosea, Admiral Gravina, Gloire de Dijon, Jean Goujon, Madame Dantin, Triomphe de Caen, Celine Forestier, Seedling No. 1, Madame Caillat, Senateur Vaisse, Alparde de Rotalier. In the class for forty-eight (three trusses) Mr. Keynes, of Salisbury, stood first with a splendid collection; Messrs. Paul and Son were second.

Mr. Keynes's First Prize Forty-eight.—Madame Vidot, Madame C. Joigneaux, Gloire de Santhenay, Caroline de Sansal, Alpaide de Rotalier, John Hopper, Duchesse d'Orleans, Laurent Descourt, Marechal Niel, Madame Derreux Douville, Lord Macaulay, Madame Rivers, Prince Henri de Paybas, Souvenir d'un Ami, Madame Fresnoy, Louise Margottin, La Brillante, Belle Normandie, Michael Bonnet, Pierre Notting, Comtesse de Barbantaune, Monsieur Pontbriant, America (good), Madame Gaillat, L'Eblouissante, Madame Charles Verdier, Madame Furtado, Madame Rousset, Victor Verdier, Gloire de Dijon, Anna de Diesbach, Beauty of Waltham, Mdle. Bonnaire, Oriflamme de St. Louis, Madame Vigneron, Madame Pauline Villot, Comte de Nanteuil, Devoniensis, La Tour du Crouy, Baron A. de Rothschild, Charles Lefebvre, Souvenir de Malmaison, La Reine, Triomphe de Rennes, Madame Moreau, Madame Charles Wood, Comtesse de Chabillant, Louis Peyronny. In the open trade classes for twenty-four, Mr. Keynes and Mr. Cant were respectively first, and again respectively second.

Mr. Cant's First Prize Twenty-four (three trusses).—Madame Julie Daran, La Brillante, Madame Charles Wood, William Griffith, Devoniensis, Dr. Andre, Pierre Notting, Mrs. Rivers, John Hopper, Beauty of Waltham, Charles Lefebvre, Souvenir d'un Ami, Victor Verdier, Senateur Vaisse, Prince Camille de Rohan, Madame Vidot, Marie Baumann (a fine rose in the way of Laurent Descourt), Comtesse de Paris, Madame Victor Verdier, Solfaterre, Lælia, Charles Margottin (a thumping rose, rather flat, like Lord Raglan, but better), Maurice Bernardin, Comtesse de Chabillant.

Mr. Keynes's First Prize Twenty-four (single).—Here, again, the flowers were notable for size, but they wanted the finish of Mr. Cant's twenty-four just noticed, La Reine, Beauty of Waltham, Gloire de Santhenay, John Hopper, Gloire de Dijon, Comte de Nanteuil, Duc de Rohan, L'Eblouissant, Devoniensis, Madame Furtado, Madame Charles Wood, Victor Verdier (6 inches over), Souvenir de la Malmaison, Alpaide de Rotalier, Marechal Vaillant, Marechal Niel, Charles Lefebvre, Pierre Notting, Monsieur Pontbriant, Triomphe de Rennes, Caroline de Sansal, Madame Moreau, Madame Clemence Joigneaux, Madame Vidot. In the section for amateurs the contest was spirited and satisfactory. The forty-eights were the leading and most important competition, and there the first position was awarded to Mr. Evans, gardener to C. N. Newdegate, Esq., Nuneaton.

Mr. Evans's First Prize Forty-eight.—Madame Clemence Joigneaux, General Washington, Mrs. Rivers, La Fontaine, Eugene Appert, Beauty of Waltham, Madame Furtado, Pierre Notting, Caroline de Sansal, Lord Raglan, Gloire de Bordeaux, Madame Amelia Halphen, Jean Bart, Jules Margottin, Souvenir de la Malmaison, Madame Charles Wood, Madame Masson, Charles Lefebvre, Madame Crapelet, Madame Emain, La Reine, Prince Camille de Rohan, Comtesse de Chabillant, Le Rhone, Vainqueur de Solferino, Souvenir de la Reine d'Angleterre, Vicomte Vigier, Celine Forestier, Victor Verdier, Coupe de Hebe, Madame Victor Verdier, John Nasmyth, Madame Caillat, John Hopper, General Jacqueminot, Lælia, Turenne, Gloire de Dijon, Baron A. de Rothschild, Leonce Moise, Kean, Charles Lawson, Madame Cambaceres, Madame Schmidt, Alexander Bechmeteff, Madame Hector Jacquin, Lord Clyde, Sœur des Anges. In the class for twenty-four (single trusses), the first position was awarded to the Rev. P. M. Smythe, of Solihull.

Mr. Smythe's First Prize Twenty-four.—Madame Moreau, Xavier Olibo, Anna de Diesbach, Charles Lefebvre, a remarkably fine sample; Madame Clemence Joigneaux, Maurice Bernardin, John Hopper, Duc de Rohan, La Reine, Marechal Vaillant, Madame

Knorr, Souvenir de Comte Cavour, Virginia, showing an eye; Lord Raglan, Victor Verdier, Beauty of Waltham, Baron de Rothschild, William Griffiths, Prince Leon, Jules Margottin, Baron A. de Rothschild, Madame Rivers, Louis Peyronny, Anna Alexieff, Gloire de Santhenay. In the class for eighteen, three trusses of each, Mr. C. J. Perry, of Castle Bromwich, presented a group of extraordinary flowers; their immense size, perfect symmetry, and delightful freshness took the special attention of connoisseurs as examples of what show roses should be.

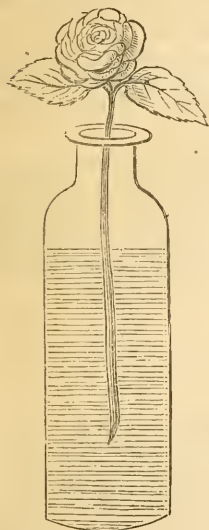
Mr. Perry's First Prize Eighteen.—Prince Camille de Rohan, General Jacqueminot, Madame Charles Wood, Madame Schmidt, Andre Leroy d'Angers, Comtesse de Chabillant, Francois Lacharme, Alphonse de Lamartine, John Hopper, Baron A. de Rothschild, Madame Bravy, Louis XIV., this lovely rose was in perfect condition, with the peculiar tinge of blue over the prevailing deep crimson, which renders it so distinct and acceptable when it deigns to flower; Madame Clemence Joigneaux, Charles Lefebvre, Senateur Vaisse, Alphonse Belin, Duchesse de Morny, Rev. H. Dombrain; the last is a refined gem, not yet appreciated; perhaps its smallness is detrimental to its popularity. Every true rosarian, however, will prefer one such flower to any number of pancakes.

MERTHYR TYDVIL FLOWER SHOW, JULY 19TH.—The great exhibition of the South Wales cultivators is held annually in the Market House at Merthyr Tydvil. On the present occasion the show was on an unusually large scale, there being no less than 1460 entries. Messrs. Maule and Son, of Bristol, took the lead in the trade class for stove and greenhouse plants, with a valuable collection, in the midst of which a plant of *Russelia juncea* was most conspicuous for its beauty. Mr. Tressider, of Cardiff, second, with a very showy collection of fine foliage plants, cleverly lighted up with well-grown geraniums. In this collection a variegated pine was noticeable for its freshness, and there were several fine *Yuccas*, a noble *Dracæna ferrea*, and many charming *fuclias*. Mr. Drummond, of Bath, brought some valuable plants, and amongst them a splendid *Bougainvillea*, and several pretty heaths. In the amateur classes, R. T. Crawshay, Esq., of Cyfarthfa Castle (gardener Mr. Hannan) led the way, and took prizes almost innumerable with splendid collections of stove and greenhouse plants, pines, and vegetables. Florists' flowers were shown in plenty and in good condition by Messrs. Fothergill, Insole, Hill, Hansard, Booker, and Vaughan. There was a plentiful show of fruit. Amongst the grapes were noble samples of Black Hamburgh, from R. T. Crawshay, Esq., and Black Frontignan, from Crawshay Bailey, Esq., of Aberaman (gardener Mr. Young). From the last-named were noble bunches of Muscat of Alexandria. The show of vegetables far surpassed the best averages of exhibitions held in the eastern parts of England, and in addition to the fine collections sent from great gardens, there was a most creditable demonstration made by working men employed in the mines, Merthyr being the centre of the South Wales coal district. Many of these collections, comprising potatoes, peas, beans, cauliflowers, marrows, artichokes, and salads, were grown in the "tips" of the district, that is, in the great masses of shale and rubbish that are "tipped" out from the mouths of the mines. The Cyfarthfa band played most merrily, and there were thousands of visitors during the day. The judges were Mr. Shirley Hibberd, of London, and Mr. William Robinson, of London, whose services the committee had secured on account of the great extension of the show beyond the averages of former years, and to insure satisfaction completely free from local bias. The judges were ably assisted by the members of the committee, and by the indefatigable secretary, Mr. T. Carlyle.

TO CORRESPONDENTS.

HARDY FERNERY.—*R. B.*—If the fernery is badly drained, the first thing to attend to is to improve the drainage, and when the drainage has been improved, so that no wet lodges about the roots of the ferns, the next important thing will be to afford some protection to their crowns. This is easy enough; straw, brushwood, or even coal-ashes will do very well, but these are all objectionable, because untidy. If their old fronds are removed to promote cleanliness, it is not likely that a lot of loose litter will be tolerated. We know of nothing better for the pro-

tection of ferns in the open ground than cocoa-nut waste—not, however, to be spread over the ground at random, but to be heaped over the separate crowns, and there left till the end of March, then to be removed during mild weather, and the crowns left again exposed to swell and expand with the advance of the season. As very many ferns, not quite hardy, are now grown in the open air in our gardens, these remarks may be of use in many instances to prevent losses. The commoner and robuster kinds of British ferns will generally take care of themselves, though if protected with cocoa dust they throw up much finer fronds the next season. Hardy ferns in pots require more care. They ought never to be exposed to frost at all, and they should never be allowed to get quite dry at the root. When potting them, there should be plenty of drainage used, expressly to allow supplies of water all winter as well as all summer.



HARDY PENTSTEMONS THAT WILL LIVE ANYWHERE ALL THE WINTER.—*R. W. B.*—*Procerus*, dwarf, green all winter, produces dense masses of pale, purplish flowers in spring. *Crassifolius* makes a dwarf, spherical, crisp-leaved evergreen bush; flowers rather sparingly. A gem for rock-work. *Gentianoides alba* lives out anywhere, except on the cold clays near London. In Ireland it makes bushes four or five feet over, which are wonderful objects when in bloom.

MOSSY LAWN.—*J. Simson.*—Give your lawn a good dressing of lime or superphosphate, and the moss will perish, and clover take its place. Clover invariably appears in plenty after liming, and moss never thrives where lime is present. In future, spread a thin coat of manure over the grass every year, in February.

VARIOUS.—*Rex.*—We are much obliged for having our attention called to the matter, which, on our part, is one of “undesigned coincidence.” *W. B. B.* will not be a contributor in future.—*Alpha.*—Dressed flowers have the advantage of looking very nice on the exhibition table. Of course they misrepresent the varieties. The plan you inquire about is illustrated in the subjoined diagram. You can easily introduce into your schedule a class for roses, asters, etc., etc., to be shown in this way. Hitherto this mode of showing has met with but little favour.—*W. Perry.*—Mr. Hibberd does not sell geraniums, or trade in any kind of articles. You can obtain the plants by sending to Mr. B. S.

Williams, Victoria Nursery, Holloway.—*Vinder.*—We consider *Raphanus caudatus* trash, and therefore have not much to say about it.

CLIPPING HEDGES.—*H. C. P.*—Yew and privet hedges may be cut at any time that is convenient, without fear of doing them injury. But the best time is the month of March, just before they begin to make new growth; and by deferring the work till then, you have the advantage of their greenness all the winter. As privet grows very fast, a second clipping should take place in the first week of July, where sharp, close lines are wanted.

THRIP IN VINERY.—*J. S.*—This pest is usually accompanied by another—namely, the dreadful red spider—and the same means employed will rid the house of both. Wash every part of the vinery, using warm water and a brush for all glass and wood-work, and lime-wash made from hot lime, with a little sulphur in it, for the walls. Slightly soak the border (if the border is inside), and water it with water to which sulphur has been added at the rate of one ounce to two gallons. Lastly, paint the pipes with sulphur mixed with milk and water. If the plague appears again, repaint the pipes once a week.

STIPA PENNATA.—I think it right to inform E. R. F., of Faversham, that of the seeds kindly sent in the spring, fifty were selected and sown on an open border. On that border there are now thirty-five plants. I suspect a few of the stipas were destroyed in the process of weeding, a few weeks back, and probably all the seeds germinated. I am much indebted to E. R. F. for the means of making this interesting experiment, which makes an end of my oft-repeated assertion, that it is a folly to sow seed of *Stipa pennata*. It follows, also, that probably the seeds

obtained from seedsmen are not good ; it is, at all events, true that I have sowed seedsmen's samples hundreds of times, and never to my knowledge obtained a single plant. The method of increase adopted here has been to divide the plants in spring, and that has answered admirably.—S. H.

CALCEOLARIAS DYING.—*J. W. Rose.*—When we have long periods of hot dry weather, bedded calceolarias are sure to perish. At the Crystal Palace and other great places they always keep a reserve stock, wherewith to patch up the beds where blanks occur. The subject has been so often discussed that it seems as if nothing new could be said about it, yet we have something new to say which will not require many words. We put out very early (middle of April) a clump of *Calceolaria Aurea floribunda* ; the soil used was *one part mellow turfy loam and three parts hotbed manure rotted almost to dust*. The result is such a bloom as we have never seen before in any garden. They began to flower in May, and now (July 26) the clump is literally a solid mass of rich deep shining gold. Several readers of the **FLORAL WORLD** have been struck by the splendour of these calceolarias, and we shall expect some of them, say Mr. Prior or Mr. G. Spencer, to send a word stating what, as observers, they think of this example. The nature of the soil they are in has not been stated to any of our visitors, and it is strange that though eulogistic exclamations have been uttered freely, no one has asked about the secret of the splendid condition the plants are in.

PLUNGING SYSTEM.—*Vindex.*—There is no system of decoration so well adapted for small gardens as this. But it is costly, demands skill, needs following up closely. There must be some glass, and the best management of it, to keep up a succession, and the place in which the plunging is to be done should be especially prepared for it. To plunge in beds of earth is nonsense. As you live on the north side of London you may see an example of plunging at the Whittington Nursery, near Archway Tavern, Highgate.

LITERATURE.

Ferns, British and Foreign, their History, Organography, Classification, and Enumeration, etc. By JOHN SMITH, A.L.S. (Robert Hardwicke.)—The author of this work is probably better acquainted with exotic ferns than any other person living. Fern-growers of all grades are familiar with the reputation of Mr. Smith, who for so many years acted as curator at Kew Gardens, and during his term of office laboured assiduously and conscientiously in settling difficult points in fern classification and nomenclature. The book before us is literally the result of the labours of a lifetime ; it is methodical ; there is no attempt made to "popularize" the subject ; it evinces hard work from beginning to end, and there are only such engravings given as are needful to explain the groundwork of the classification. It scarcely need be added, that it is a mine of wisdom, that it is concise and truthful, that it is everywhere practical, and that, to sum up our eulogy, it is such a book as no lover of ferns should be without.

CATALOGUES.—We have received from Messrs. Carter and Co. the third part of their *Vade Mecum*, in which there is a capital list of bedding plants, and an essay on styles in bedding, which every lover of the parterre may consult with advantage. From Mr. B. S. Williams, a general *Plant Catalogue*, of a very elegant and attractive kind, illustrated with figures of palms, Beaucarneas, ferns, etc., and containing a complete list of stove, greenhouse, and hardy plants, on sale at the Victoria Nursery, Holloway. From Messrs. E. G. Henderson and Son, a *Catalogue of Soft-wooded Plants*, in which their new tricolor geraniums, and other novelties, are announced. It is rich in matters of interest for growers of geraniums, fuchsias, gloxinias, and other choice tenants of the greenhouse and the stove. From Messrs. Smith and Simons, Glasgow, a *Catalogue of Bulbs and Roses*. The bulbs announced are good leading sorts, and the roses include all the novelties of the season. From Mr. George Smith, Hornsey Road, a *General Catalogue* of choice plants, including new geraniums, petunias, fuchsias, verbenas, etc., etc. From Messrs. F. and A. Smith, Dulwich, *A List of New Varieties of Florists' Flowers*, comprising new roses, new fuchsias, new geraniums, etc., etc.

THE FLORAL WORLD

AND

GARDEN GUIDE.

SEPTEMBER, 1866.

THE GLADIOLUS.



THE season for purchasing and planting of bulbs has come round once more, and I wish to offer a few seasonable words of advice on the cultivation of the gladiolus. The bloom is generally good this season, and the new sorts have mostly turned out well, and we may, therefore, consider the flower to have made some real advance in popularity. I think it may be safely said that for decorative purposes there are no bad gladioli, though among the named varieties some are better than others, and those who have what is termed "a florist's eye," will prefer flowers with broad segments, flat faces, and smooth edges, provided they have firm, pure, and regular colours. I should much like to see our Editor's selection of varieties, as he possesses better opportunities than perhaps any other cultivator of the day for seeing and judging amongst all the kinds in cultivation, and is, I believe, one of the most successful growers of this fine flower. The point I wish to remark upon is the proper management of the bulbs, with a view to prevent the disease which so frequently attacks them, and which proves so terribly destructive, and concurrently to secure a good bloom, and a reasonable increase of the stock. Having treated them in every way I could think of, having the encouragement and approval of my excellent employer in so doing, I think I may say, without any approach to boasting, that I have learnt how to treat them with perfect success. In the first place, then, I must say that one of the principal causes of disease in gladioli is *keeping them too long out of the ground*. The practice has been to pot them or plant them in April or May. The consequence is, they have not time to make roots before the heat of the weather pushes up the flower-spikes, and the sap is consumed faster than the roots can furnish supplies. In such a case disease *must ensue*. Another mistake is the fear of using manure. Some very foolish papers on gladioli appeared a few years ago in the gardening journals, and did much mischief. People were told that manure was poison to these plants, and the consequence was that being in the first instance impoverished by planting too late, they were next badly fed through fear of using manure. With two impoverishing causes against them, no wonder many an amateur lost

his stock, and was disgusted for a season. I know the FLORAL WORLD never joined in such ridiculous directions, and, indeed, I owe to it the first hint that set me on the right track to discover the causes of the disease and the *rationale* of its remedy.

I say, then, that *early* planting is essential to success. If the bulbs are ripe and *hard*, they may be potted now, but as there need be no great haste, hyacinths and crocuses may be disposed of first. Instead of waiting till April and May, take care that every gladiolus bulb is in the ground before the 1st of February, and if any quantity is required, pot them in successive batches, so as to secure a long season of bloom. Imported bulbs are, of course, ripe earlier than those grown at home, and may be potted before it would be safe to take up our own. And, indeed, as to taking up, I find that if I can keep the beds rather dry and safe from frost all winter, the next season's growth and bloom are finer than by the system of annual planting.

There are two evils to guard against in winter; do not let them be touched by frost, and do not force them into growth. Suppose a bed of gladioli now in full bloom; they will probably keep green till the end of October. If they are green then take them up with as little injury as possible, put them into pots without injuring the roots, fill in with any fine soil, mere grit or cocoa-nut fibre will do, and place them in a sunny pit or greenhouse. After potting water them once, and after that do not give them a drop. This treatment will cause them to ripen off, and to complete the process expose them to the full sunshine on a shelf of a lean-to house, or in any dry place where there is some degree of warmth, to ripen them; remembering that in their native country, the bulbs get well roasted by sunshine before the winter sets in, and that the winter they are subjected to is a very mild affair.

The material I have found best for covering the beds is new straw. This I lay on at the end of November, six inches thick, and over it I throw two or three inches of quite rotten dung, which hides the straw, and adds to its protective powers. Hitherto I have taken off the straw in March, and have then raked the powdery manure evenly over the bed, and the growth subsequently has been very satisfactory. But next year I intend to leave the dressing untouched, because after six months the straw and manure will sink down to about four inches in all, and a liberal top-dressing, through which the next growth will have to push, will be sure to benefit them, while it is not likely to remove the bulbs too far from the daylight, because the new or succession bulbs are formed above the old ones, so that they naturally tend, like crocuses, to come to the surface if left in the ground.

As to soil, a good turfy loam with plenty of sand, leaf-mould, and thoroughly decayed manure is the best they can have. Good drainage is indispensable; and in case of a long continuance of hot dry weather, in a place where the soil is thin over chalk or gravel, liberal watering should be done. However, as a rule, these, like other subjects *properly* planted out, do better without artificial watering than with it.

When grown in pots let the compost be mellow turfy loam two parts, and one part each of leaf-mould, sharp sand, and thoroughly decayed manure, say, for example, three-year-old hot-bed dung. They may be potted singly in five-inch pots, but are more effective if three or four bulbs are put into a seven-inch pot; and for peculiar purposes such sorts as *Brenchleyensis* or *Bowiensis* may be potted in ten or twelve-inch pots, using seven or eight (or more) bulbs in a pot. These, when in bloom, would make magnificent ornaments for a terrace walk or the front of any building.

Another mode of dealing with them is to combine pot culture and planting out, and this should be done by all who are afraid to leave their bulbs out all the winter. Pot them singly in January, and plunge the pots to the rim and cover them a few inches deep with some protective material. During frost lay branches of spruce over, or in any other way that may be convenient, protect them from frost. By the 1st of May the pots will be full of roots, and they may then be planted where they are to bloom, and this, of course, should be done without any damage to the roots.

There is yet another way of forwarding them preparatory to planting out, and that is to bed them in frames without pots. Cut a lot of grass turves into breadths of about six inches, set them on edge, six inches apart, and fill in between with suitable soil. Then plant the bulbs in these divisions six inches apart, and leave them till the first week in May, when, the beds being ready to receive them, they may be lifted out of the frame in squares and be planted where they are to remain.

J. WALSH.

HYACINTHS FOR EXHIBITION.



It may happen that some of the readers of the *FLORAL WORLD* would find a pleasure in growing hyacinths in true exhibition style, both for the better embellishment of their conservatories and greenhouses, and perhaps to exhibit for public competition, though there are but few shows held at the time when hyacinths are in bloom. As an old and successful exhibitor I propose to offer a few observations, but have no intention to enter into the subject of hyacinth growing at great length.

One of the first steps to achieve success is to secure suitable bulbs. Some of the samples with which I have taken first prizes at great meetings have been so large that I could scarcely get them into 48-sized pots. Of course such bulbs fetch a long price, and very few private growers would purchase them. Nevertheless, I think it right to act upon the frequent suggestion of our worthy Editor, "to keep nothing back, to let there be no secrets." I do not mind saying that I have many a time refused a guinea for a bulb, which, except for its extraordinary size and weight, would have been valued at half-a-crown, or even less. Such bulbs do not always, however, make a proper return for their extravagant cost, for

instead of throwing up one huge spike, which is exactly what we want of them, they sometimes produce half-a-dozen medium spikes, and are then magnificent for decorative purposes, though not adapted for competitive exhibition. In selecting these extra large bulbs, I always prefer those with a distinct central neatly-finished point (or crown) to those that are rough or showing the slightest tendency to divide vertically. When the whole bulb has but one set of scales, and these come to a nice finish at the growing point, they usually produce only one spike, and of course that is a monster and counts for one to show.

But very fine exhibition spikes may be grown without extra sized bulbs. Some good sorts never make large bulbs, and some never make handsome bulbs. I advise the grower who does not mind paying a little extra, to give the dealer notice of his desire for picked samples for exhibition, and at some advance on the average rate. Grand specimens may be obtained such as are never parted with at catalogue prices. This fact is not generally known, and exhibitors do not care to have it known too widely, because of the monopoly they enjoy of these "first selected" samples on the arrival of the bulbs from Holland.

Now let me endeavour to indicate how to select bulbs for yourself. Size and shape are not all-important. Get large bulbs if you can; get them with one distinct and nicely-finished crown; but above all things be sure of this—that they are *heavy*. I weighed a lot of Koh-i-noor and Solfaterre bulbs last year, and made notes of them when in bloom. The heaviest gave the finest spikes and the richest colours. All the light ones were poor spikes, and some of them were quite washy in colour. I never knew Milton or Howard to come fine from any but heavy bulbs, and indeed, the rule holds good throughout, but applies especially to high-priced sorts, because these the growers do their utmost to increase, and of necessity hard propagating results in the production of samples not quite up to the mark, for the prices they realize tempt the growers to send as many into the market as *look* fit for the purpose. Size and shape are not unimportant characters, but *weight* is the final and decisive test.

As to the growing of them. I have taken the highest prizes in spirited competitions with the bulbs potted as late as Christmas. Late potting, therefore, is not of necessity fatal to success. One thing is certain, if the bulbs are to be potted late, they must be preserved from contact with the atmosphere. Put them away in dry chaff, or any such preservative: the husky stuff they are packed in by the Dutch keeps them well; but whenever I have had to pack a large lot away in a fresh store, I have used grass seeds, which, of course, were just as good, after they had served this purpose, as before. Still, though keeping them out of the ground till the end of the year does not of necessity ruin them, I prefer to *plant early*, reserving a few to plant late, so as to secure a succession of flowers.

Private growers are not generally aware that the proper stuff to use in potting hyacinths for exhibition is a mixture consisting of one half fat dung, and the other half good turfy loam, with a large admixture of sharp sand. The sweepings or scrapings of a much-

frequented gravel road answers admirably to incorporate with the mixture, to render it porous. To secure abundant root-room use only one crock over the hole in the pot; then fill in and press moderately firm; then press the bulb down in the centre till it is more than half buried; then fill in round it with fat dung alone. If the soil is in a moderately moist condition, the potting may be performed with great rapidity, and the bulbs will hold well in their places. But if too wet or too dry when the potting takes place, they will be apt to tilt on one side as soon as the first roots push, and this will very much interfere with their beauty when in bloom, as the stems will be bent near the base. As an additional precaution against tilting over, do not pot them *too firm*, that is to say, do not press the bulb so hard that it will be bedded on a pavement when in its place, as the first roots, being unable to penetrate the hard soil, will lift the bulb up, and once out of position, it can never be nicely put right again.

All other details of cultivation are the same as have been described in this and other works again and again. I abstain from further detail, because the Editor assures me that he wants only such facts as may be supposed to be unknown to the majority of private cultivators. So I will wind up by saying that the pots containing the bulbs should be packed close together in a well-drained bed, and have one good watering. They should then be covered six inches deep with coal-ashes, or any other suitable material, the most clean and suitable being cocoa-nut fibre waste. They should never remain in this position beyond the 15th of February, but in mild winters will have to be removed at least a month earlier. Under any circumstances they may be allowed to push three inches before being taken out, but after that it would harm them to remain. Place them for a week on the floor of a cool house to become green, then put them in a gentle heat, and according to the time when wanted in bloom, force them fast or slow, always taking care to keep a few back in full daylight in a cool house, safe from frost, to furnish the latest display. Those expected to give extra fine spikes should be assisted by a top-dressing of sheep's dung from the time when the spike begins to rise freely; if there is no room to put this dressing on, remove a little of the stuff first used to fill up the pots with round the bulb, so as to introduce half an inch depth of the fresh dressing. I have tried Standen's manure in the same way, and found it answer admirably. Manure water I strongly object to, chiefly because of its liability to misuse. When we have to trust much of our work to others, the more simple the routine the better, and by using top-dressings and pure soft water, the plants are much more safe than when liquid manure is allowed, for one dose of it, if it is a little too strong, will ruin the hopes and labours of a season.

I forgot to remark in the proper place that when they have been watered and plunged, small pots should be inverted over them before covering them with tan or coal-ashes. I do not like the plunging material to touch the bulbs, and this is prevented by inverting pots over them.

J. C.

SPECIMEN FERNS.



AMONG the thousands of specimen ferns I see in the course of a year in visiting gardens and flower-shows, I notice that a large proportion of them are grown to exhibition size by means of heat and moisture, so that their fronds are not so robust, nor their pinnules so fat and finely coloured, as is the case with specimens grown by good root culture. With a close damp atmosphere and sufficient warmth, ferns of almost any kind may be grown to a good size with scarcely any soil at all. So long as they remain in the same condition they do well, but once move them to a fresh place, and their beauty is destroyed in an hour. Hence it happens that specimen ferns, which, in the early part of the day, the judges find to be most beautiful and deserving of prizes, are a few hours afterwards shrivelled up and half dead, and the public then thronging the tent wonder how such things could have taken prizes at all. The same thing happens at home, when specimens forced on with a close heat and much moisture are taken from the stove to the conservatory or to the dinner-table. A few hours after the removal they are found "all of a heap," and pronounced too tender for the operation, though, perhaps, if properly treated, they would bear removal from place to place, and even some rough usage, without looking any the worse for it.

I have two remarks to offer on this subject, but I will preface them with this practical observation—that specimen ferns require to be prepared for removal in the same way as we prepare orchids, caladiums, and other tender plants, namely, by first removing them to a cool, dry, still air, and partially withholding water for a week; after which they are better fitted to endure the exposure to draughts and other evil influences incidental to flower-shows.

The two remarks to be made on the proper treatment of specimen ferns may be compressed into a few words—1st, grow them in firmer composts than ordinarily advised, and use as much as you dare with safety of nourishing silky loam; 2ndly, give the plants a shift into the pots they are to be shown in in autumn, instead of waiting till spring.

Under the first head it only needs be said, that the composts used for ferns are rarely sufficiently nourishing. Fibrous peat is indeed an excellent staple, but the roots soon extract from it all the nourishment it contains; whereas, if about a fourth part of mellow hazelly loam is used in the compost, a richer, stouter growth will result, the fronds will be more glossy (if glossy kinds), and of a more beautiful shade of green than when grown in a compost of a lighter nature. I do not here enter into the requirements of individual species—some require an admixture of stone, some love sand, and some scarcely require soil at all. The species grown as specimens are mostly of free rooting habit, and require to be well fed; and experience has taught me that the introduction of a certain amount of good loam is a decided advantage to the specimens.

Under the second head, I wish to observe that ferns are much like forest and fruit-trees in one respect, and that is, that they make new roots all the winter, even when their fronds have perished. By potting in autumn the plants are encouraged to fill their pots with roots before the new spring growth takes place, and that growth is the stronger and more beautiful from the abundant roothold the plants have obtained to support it. In the course of the next few weeks we shall shift into larger pots all our specimens that are capable of benefiting by increased root room.

SHIRLEY HIBBERD.

THE ROSES OF 1865-66: MARESCHAL NIEL.

BY W. D. PRIOR, WUGHTON HOUSE, CLAPTON.



EVER was the influence of a season upon roses more aptly illustrated than during the past summer. Up to the date of the Crystal Palace show the weather was most unfavourable, and, in consequence, never were such inferior collections exhibited as upon that occasion. It is not too much to say that there was not, among the whole, a first-rate stand. Since that, however, the nutritious rains and warm sunshine have filled out and developed the flowers, which have seldom been seen in finer condition. The rose is somewhat of a toper, and, like other thirsty souls, delights in strong fluids, and also in plenty of succulent food, a fact to be borne in mind by those who wish to avoid failure in growing it, and to deserve success, so that, if nature be sparing in her bounties, art should be called in to supply the deficiency. My own roses were very backward, and consequently bloomed late, yet, during the whole of my experience and observations, they never were finer; and, in my visits to rose nurseries, I have found like circumstances to prevail.

As the result of close criticism, I have found that neither among roses of the current or the previous season, has a second "Charles Lefebvre" been introduced; nevertheless, some good and novel additions have been made, and of a character likely to sustain for some time a respectable position in the catalogues. Before giving a list of the most valuable in my opinion, a few special remarks may not be out of place respecting the *quasi* new tea, Mareschal Niel. This rose has already excited some controversy, occasioned perhaps by there being a spurious kind in the market. It is properly a *Noisette*, and might well be described as a hardy Cloth of Gold. It opens fairly in the open air, and will consequently be a great addition to the section of yellow roses. It will probably succeed admirably trained against a south wall; but, as for superseding that most excellent old favourite Gloire de Dijon, the best of roses for all purposes and places, it is by no means likely, and it will no doubt assume its proper place after its novelty has somewhat worn off. It is too early yet to pronounce dogmatically upon the best

method of dealing with it. It appears to flower upon the terminal shoots, and upon them with tolerable freedom, for I have seen a large bed at Mr. John Fraser's (who has the true variety) generally in flower. Whether it will, like Gloire de Dijon, produce blooming laterals, when the leaders are stopped back, it is premature to assert. It appears to be equally good on the briar as on the manetti (young plants of this kind have done extremely well in my hands), and I am informed that cuttings strike readily under a hand glass. Taking these considerations into account, all in all, it must be admitted to be one of the most promising acquisitions of its class that has been imported into this country during recent years. There is another novelty, of a somewhat similar class, which deserves a few words of remark—Climbing Devoniensis. This is said to be a sport from the old favourite, of rapid growth; the foliage is like it in colour and character, but the flowers, though somewhat resembling, are decidedly inferior, still it is worth trying on a wall.

Opinions upon novelties should always be given and received *cum grano salis*, those which follow, however, have been the result of close and frequent examination, corroborated by comparisons and consultations with experienced authorities. The varieties hereafter enumerated may therefore be ventured upon with fair prospect of success. I think it may be asserted that the roses of 1865 were not so good as those of 1866. The best of the former may be taken from among Princess Mary of Cambridge (Paul and Son), not a first-rate rose, but desirable on account of its being light in colour; light roses of high pretensions are scarce. Charles Margottin, a peculiar rose in the wood, bright in colour, double but flattish; may be described as a brighter edition of Colonel Cambriels. Charles Wood, good scarlet. Dr. Andry, fine. Duke of Wellington, small, but fine in colour. King's Acre, an improved General Washington. Madame Amelia Halphen, good. Madame Elise Vilmorin, large, promising. Madame Moreau, one of the best. Madame Roussett, worth speculating in. Marguerite de St. Amand, light rose, large and full, well shaped; an acquisition. Rushton Radcliffe, I have not seen this, but it is spoken of highly. Semiramis, light, and therefore not to be passed by. Souvenir de Wm. Wood, a beautiful rose, as dark as Prince Camille de Rohan, but more purplish in the tint. This is an excellently formed, large, double rose; but it has the defect of weak footstalks, which do not sufficiently support the weight of the flower. Xavier Olibo, another grand dark rose, very globular, but possibly in some climates hard to open. Mareschal Niel has already been spoken of. Madame Charles Verdier, which has been mentioned as promising in previous papers, has with me turned out a failure—it is simply a huge poppy.

Amongst the finest varieties of 1866 stand the following:—Alfred Colomb, very bright red, much after the style of Victor Verdier, and consequently a first-rate rose; Comte Alphonse de Serenge, fair; Exposition de Brie, bright scarlet, certainly one of the finest, and, if it does not go off during the process of cultivation, it will prove truly excellent; Jean Cherpin, a fine dark colour, but I am not certain of its doubleness; Josephine Beaubarnais, a fine light rose—

by all means let this have a good trial; Comtesse Palikas, globular, pinkish, desirable. Marcella—this is a peculiar rose of vigorous habit; the colour is as nearly as possible that of the flower of a *Nerium splendens*. The shape is expanded, large, and very double; and the flower, when cut, is one of the most lasting I have met with, owing to the leathery texture of the petals. It is down in my list for strict trial. Mademoiselle Marguerite Dombrain, colour silvery rose. I consider this one of the most promising roses of the year. President Mas, a dark rose, is also down in my notes as a rose worthy of close experiment. Should I not be deceived, it will form a valuable addition to any rosary. Madame Eugene Appert appears to be a nice light rose. Prince de Porcia, good in the "Senateur" line. By the way, this fine rose has not come out well during this season, probably from over propagation. Buds should always be taken from the main shoots, but excessive demand compels nurserymen to use every one available from a favourite sort, and, in consequence, those propagated from side branches often turn out degenerate representatives of their original progenitors. William Rollison, very fine, quite in the line of that beautiful variety, Duc de Rohan, which would possibly be more thought of had it not been put somewhat in the shade by that exquisite flower, Madame Victor Verdier. Charles Rouillard is a nice rose, somewhat after Mrs. Rivers.

While considering these novelties, it will not be advisable to altogether forget some well-established favourites for the advantage of beginners. The very best roses still are Charles Lefebvre, Madame Victor Verdier, Senateur Vaisse, Madame Charles Wood, John Hopper, Jules Margottin, Victor Verdier, Madame Rivers, Gloire de Dijon, Devoniensis, and Souvenir de la Malmaison. These remain unsurpassed, and should form the nucleus of any collection for neophytes in rose lore. If these succeed there are many other first-rate varieties at their command, as the following list, exclusive of the varieties for 1866, will exemplify. A dozen more might, perhaps, be picked out, but none among them could be more than additions.

H. P's, Achille Gonod, Alpaide de Rotalier, Anna Alexieff, Baronne Prevost, Beauty of Waltham, Caroline de Sansal, Centifolia Rosea, Charles Lefebvre, Comte de Nanteuil, Comtesse Chabriland, Dr. Andry, Duc de Wellington, Duc de Rohan, Duchesse d'Orleans, Francois Lacharme, Gloire de Vitry, Jean Goujon, John Hopper, Jules Margottin, La Duchesse de Morny, Louise Peyronny, La-fontaine, La Ville de St. Denis, Le Rhone, Lord Macaulay, Louise Darzin (a little gem of a white rose, not large enough for exhibition), Madame Clemence Joigneaux, Madame D. Douville, Madame Domage, Madame de Cambaceres (a most admirable rose, still stupendous in growth and foliage, and, if profusely fed, will give flowers to astonish some smatterers in rose affairs), Mrs. Rivers, Madame Victor Verdier, Madame Moreau, Madame Roussett, Therese Appert (peculiar colour), Maurice Bernardin, Marguerite de St. Amand, Mrs. Charles Wood, Olivier Delhomme, Pavillon de Pregny (not a show variety, but a charming free-blooming thing for the garden,

which no rosarian should be without), Prince Camille de Rohan, Princess Mary of Cambridge, Senateur Vaisse, Souvenir de William Wood, Triomphe de Caen, Vicomte Vigier, Victor Verdier, Xavier Olibo, Madame Knorr, and King's Acre. With these fifty a rosary would be complete, as far as the class of hybrid perpetuals was concerned. The best six Bourbons are Baron Gonella, Catherine Guillot, Comtesse Barbantanne, Emotion, Rev. H. Dombain, and Souvenir de la Malmaison. By these we get a few very light colours into our list, which are further added to by the Teas. I have only selected those which do out of doors—Alba Rosea, Devoniansis ("climbing" also), Gloire de Dijon, Madame Falcot, Melanie Willermoz, Narcisse (N), Mareschal Niel (N), Sombreuil, Souvenir d'un Ami, Vicomtesse de Cazes (must be protected in winter), and China Mrs. Bosanquet making up the dozen. Happy the rosarian whose soil, situation, and space enable him to revel in quantities of these beautiful kinds; he will never be without choice flowers to regale his sense of sight and smell, or to cut beautiful bouquets from for the delectation of admiring acquaintances.

NOBLE AND EFFECTIVE CLIMBERS.



ALMOST as long as man has taken pleasure in a garden has he considered climbers worthy of much trouble and attention, else why the trellises and arches, and numerous like contrivances, which exist in almost every garden? But how seldom are these well embellished! How often do we see worthless stuff running over such that never furnishes flower or fragrance sufficient to attract the attention of the most observant! It is not that good climbers are not to be obtained, but because a really good selection is but very rarely made. Lately, however, we have had such a telling addition to our stock in the way of noble hardy climbers, that we have only ourselves to blame if every wall and trellis is not sheathed with the highest beauty. I allude to the advent of the new clematises.

Clematis lanuginosa, *azurea grandiflora*, and others, have long graced our gardens, and are remarkable for their enormous flowers of various shades of blue; but it is only within the past few years that numerous striking varieties of the family have been noticed at our shows, in various shades of blue and rich dark purple. They are so attractive in appearance and noble in flower, that doubtless many of our readers have been induced to purchase young plants, and therefore a few words on their culture may not be amiss. They are, when well grown and flowered, the noblest of all climbers for walls, trellises, or any other position in which hardy climbers may be desired. We have seen them flourish freely planted on the level ground, and allowed to stroll over it in their own way. On trellised arches which one occasionally sees in gardens, on the slender wire-work fence so often used of late, they are truly beautiful and effective. They, like most things that we have to treat of, enjoy a good

rich soil, and if with that it is light and free, so much the better. If the soil is very heavy it had better be made light by the admixture of road sand, leaf-mould, and other matters which may be convenient before planting; if light, it must be well-deepened and enriched with rotten manure, and stiffish loam, if convenient; but, no matter what the soil may be, the secret of cultivating these clematises is to give them a few inches of well-rotted manure, on the surface of the earth all round where the roots are, or, in other words, to "mulch" them. If the appearance of the manure is objected to, as it may be by many, it may be covered with an inch of soil, and on that some annual, like the aster, may be grown for the summer months. As regards training, they are best left alone in summer, at least till the shoots get very long indeed; but during the winter months they must be firmly tied or nailed over whatever surface they occupy, as the weight of flowers is considerable where they are properly grown, and by having the main shoots firmly secured, the rich mass of blooms, many of them as large and larger than tea-saucers, may be allowed to hang down in a graceful and natural manner, which much increases the beauty of the plants and whatever position they adorn.

It is almost useless to enumerate any special kinds among those new hybrids and varieties sent out by Messrs. Jackman, as all are good, and it is only necessary to pick out the most diverse, and in many gardens where climbers are much valued, all the varieties will be acceptable. Within twenty yards of the spot where I write this there is a splendid plant of Jackmannii, every shoot suspending a range of noble rich violet flowers, and several dozen other kinds, large and small, and all nearly equally beautiful and equally appreciated. The small kinds like Viorna, with its pale pink flowers; Shillingii, with its very delicate ones; Flammula, with its mass of fragrant spray covers arches beautifully, and looks effective in the mass; while here and there the splendid single flowers of such kinds as Rubro violacea, catch the eyes of many who hardly ever notice a flower. Those who plant clematises should never by any chance omit the beautiful large-flowered variety of Clematis montana, usually called C. montana grandiflora, as its beauty in the early part of the year, before any of the other kinds expand, is unsurpassed by that of any other hardy or tender climber.

HAROLD STEVENS.

THE PANSY.

BY WILLIAM THOMPSON.



HERE are few flowers which exhibit so forcibly the extraordinary improvement which may be effected in form, size, and colour, by diligent cultivation and hybridizing, as the Pansy. It was introduced to the region of fancy flowers by Lady Monck, in 1812, and since that date what an immense number of superb varieties have

been produced. It is only necessary to place a flower of the wild *Viola tricolor* side by side with one of our present garden varieties to comprehend at a glance the mighty improvement it has undergone. Ever since it was taken in hand by the florists it has maintained its popularity, and bids fair to continue it for many a generation yet to come. The favourite situation of the wild Pansy is in fields of growing corn, where it is partially shaded from the heat of the mid-day sun and the wind; but it is frequently met with in meadows, and is one of the gems of our native flora. It is also plentiful in fields throughout Europe, Siberia, and North America, where it is always regarded with affection by the tillers of the soil. That our ancestors admired and loved it is evident from the number of endearing names it was called by, at various periods, in different parts of the country. Three Faces under a Hood, Herb-Trinity (on account of the three colours and three divisions of the flower), Love in Idleness, and Kit Run About, are a few of them; the name, however, by which it is now commonly known, and the most loving of all, is Heart's-ease, a name by which the poets speak of it:—

There is a little flower that's found
In almost every garden ground;
'Tis lowly, but 'tis sweet;
And if its name express its power,
A more invaluable flower
You'll never, never meet.

How it obtained the name of Heart's-ease remains a mystery; but the poets have attributed such a romantic appellation to various causes:—

I said in every garden ground,—
Perhaps in Eden 'twas not found,
For there it was not wanted;
But soon as sin and sorrow came,
The flower received its gladdening name.
By mercy's angel planted.

However, Herrick assigns its origin to a very different cause:—

Frolic virgins once there were,
Over loving living here;
Being here their ends deny'd,
Ran for sweethearts mad, and died.

Love in pity for their teares,
And their loss in blooming years,
For their restlesse here spent houres,
Gave them heart's-ease turned to floures.

The most elegant name by which it is at present known is Pansy. This word came originally from the French *pensée*, signifying thought, and it is in this sense that it is regarded by writers. So that besides its heart-healing virtues this little flower has other good qualities attributed to it:—

Are not Pansies emblems meet for thought?
The pure, the chequered—gay and deep by turns?
A line for every mood the bright things wear
In their soft velvet coats.

Shakspeare alludes to this meaning in his "Hamlet," where Ophelia says, as she distributes her flowers, "There's rosemary, that's for remembrance; pray you, love, remember; and there is pansies, that's for thoughts."

Pansies are not difficult to cultivate, as they will grow in common garden soil with little attention; but if it is desired to grow them for exhibition, a sheltered place must be selected, as cutting winds are very injurious, often doing serious damage by twisting them about. Yet the position must not be so sheltered that the air cannot have free access, and if such that the morning sun can get to them all the better. But they must be protected from the full heat of the sun's rays at noonday, and from violent rains, as the first spoils their colour, and the second their petals.

A light rich sandy soil is that which suits them best; a hazel loam, with a fair proportion of rotted turf from pasture, thoroughly intermixed by frequent stirring, and added to this a fourth part of cucumber-bed manure, two years old, will be found just the compost for them. Just as they are coming into bloom, watering with guano-water will be found particularly beneficial.

The plants should be selected with great care for the purpose of producing blooms for exhibition, a great point to bear in mind being that those plants which have borne the best flowers one year will never produce such fine ones the next season. Propagation by means of cuttings should be carried on at any time between the 1st of May and the end of October. Remember as an invariable rule that the youngest and strongest shoots will always make the best plants, and the old hollow stems seldom strike freely. Avoid unhealthy plants, which should never be used for propagating, as the plants raised from them invariably prove failures. They must be protected in the winter from severe weather, but they require but little attention, as they will pass the winter well in a cold frame, but should be bloomed in the open border.

For flowers to exhibit in May and June, select plants which have been struck in the previous August and September, and for the September exhibitions select plants struck early in the spring. The shoots on each plant should be reduced to four, and these must be staked, to keep them from being damaged by the wind. Never allow blooms to expand unless they are required, and when the weather is very dry top-dress with clean sharp sand, and give a liberal supply of water. After they have produced their blooms, save them for store plants, for the production of cuttings, always keeping a succession of young plants for blooming. Some sorts have a tendency to grow too strong, and produce rough flowers; but this quality may be improved by growing them in poor soil, or allowing them to bloom till they somewhat exhaust themselves, when they will produce better flowers.

The soil may with advantage be taken away to the depth of ten inches, in the position chosen for blooming them, and its place filled in with the compost recommended above. If a little sharp sand is mixed with it, it would perhaps be better; and although it should be well mixed, yet it must not be broken up too fine, but have among

it a considerable proportion of moderate-sized nuggets. Wireworm is frequently found in rotten turf, and therefore it is important to keep a sharp look-out for it while the compost is being mixed and turned about, as if suffered to remain in it speedy destruction will follow, one insect being able to destroy a plant in a few hours, as it will either cut it through at the root, or eat its heart out. Slugs and snails are great pests to the pansy-grower, and must be well looked after; a good plan for keeping them away is to water the bed late of an evening in moist weather with lime-water, sprinkling the surface pretty thickly with fresh wood-ashes.

The pansy is subject to a disease which occurs about June and July, when the plants suddenly appear sickly, turn yellow-spotted, and die in the course of eight or ten days; this disease has received various names, as *root-rot*, *decline*, etc., but both cause and remedy remained for a long time undiscovered. However, it has at length been pretty satisfactorily proved to be caused by the depredations of a small brownish-coloured worm, about the thickness of a small silk thread, and about half an inch in length, which eats the cuticle or skin from off the roots, thereby causing death. However, these little rascals may now be very satisfactorily managed, as they have been found to be great lovers of potatoes, and therefore are easily trapped. Scoop out some potatoes in the form of a cup, and immediately after planting insert them just beneath the surface of the ground; the worms will feed on them greedily, and the traps may be looked at periodically, and the marauders slain. Where these little pests abound, great numbers of them may be killed in a single day by means of these very simple and effectual traps.

All that is said above respecting the "show" varieties applies to what are called "fancies." These last are becoming great favourites on account of their splendid colours, grotesque and sometimes comical burlesques of the "human face divine," and their continuous and attractive flowering. As you have abandoned the rule of avoiding all mention of the names of traders (so at least I am informed) I will add that the most noted dealers in pansies are Messrs. Downie, Laird, and Laing, of Edinburgh and Forest Hill, London.

USEFUL FERN VARIETIES.

ADAPTED FOR SMALL FERNERIES UNDER GLASS AND IN THE OPEN AIR.



THE following notes have been suggested by a perusal of Mr. Sim's "Descriptive Catalogue of British Ferns," which may be obtained from Mr. Sim, of Foot's Cray, Kent, by transmitting six stamps. My own collection of varieties of British Ferns includes many hundreds of the very best, and these notes are the result of frequent observation and comparison amongst them.

To take them alphabetically, we must begin with *Asplenium*,

among the species of which, there are some very pretty and useful varieties. *A. adiantum nigrum acutum* is a capital little sport to grow in Wardian cases, so is *A. lanceolatum microdon*, with the tongue-like terminations of its pretty fronds. *Asplenium marinum* is one of the very best of British ferns to grow under glass cases, and has a very distinct and rich appearance when its deep green fronds are covered with ripe fruit. Some years ago we had from Mr. Sim a vigorous upright-growing variety called *alatum*, and the very best form possible for a case, because it never sprawls over towards the light. This form is not entered in the present list, but we find *ramosum*, a branched variety, and *ramo-trapeziforme*, with overlapping divisions, which make beautiful specimens under glass. *A. trichomanes*, which thrives so admirably in dry positions out of doors, and which we used to find, years ago, in almost fabulous quantity on an old wall at Blackheath, offers a whole series of varieties, the best of which are *cristatum* and *inciso-lobatum*.

Of the Lady Fern, *Athyrium filix fœmina* presents us in this list with no fewer than fifty-eight varieties, and the reader curious to know something of them must refer to the catalogue direct. But we can recommend as distinct and beautiful the following:—*compositum*, which has tasselled, peaked, and depauperated fronds all mixed together, and no two alike on the whole plant; *conioides*, with lance-shaped fronds, and overlapping crispy pinnules, here and there forked; this makes a grand specimen; *coronans*, which is crowned with crispy crests; *corymbiferum*, a well-known vigorous-growing and finely-crested variety; *diffissum*, of small growth, very curiously toothed; *Fieldiæ* and *Frizelliæ*, the two most curious of all, both with narrow tapering fronds, the first with rachial pinnules of all shapes and sizes, but all arranged in the style of serpents' teeth, with the toothed divisions pointing backward, the second with arching fronds beset their whole length with small fan-shaped neatly-toothed divisions. *Grandiceps* is a magnificent crested and branched fern, well adapted for exhibition; *multifidum* has all the original grace of the species, and pretty tassels added from top to toe; *ramo-cristatum*, one of Mr. Sim's sports, produces some fronds, like *Lastrea f. m. cristata*, and others branched and tufted, and is a very beautiful novelty. *Grandiceps* is a remarkable variety, on which some remarks were made last month.

Of *Blechnum spicant*, the beautiful Hard Fern of our coppices, there are sixteen varieties enumerated, all of them striking in character, and keeping true to the rich deep green, firm texture, grace, and gloss of the species. The best of them are *concinnum*, with overlapping lobes, tapering to a point; *imbricatum*, overlapping and crowded, and remarkably distinct in character; *multifurcatum*, nearly prostrate, with many forked terminations, very curious and beautiful; *ramosum*, the ends of the fronds repeatedly branching, and the branches crested, the best of the series.

Cystopteris fragilis, the Bladder Fern, is a beauty in every stage of natural or abnormal growth, and when in fruit, and seen between the eye and the light, one of the loveliest objects in nature. Among its few varieties we recommend *angustata*, which grows taller

than the species; *Dickieana*, occasionally forked, but inconstant; *sempervirens*, which is evergreen when protected. *Cystopteris regia* produces no varieties, but it would be an injustice to pass it by without mention, for it is an exquisitely graceful subject, and when quite established in an elevated part of the hardy fernery will take care of itself, and endure all weathers with impunity.

Lastrea cristata may stand upon its own merits for grace and vigorous habit, but there are three varieties of it named—*spinulosa*, *spinulosa nana*, and *uliginosa*, the last a truly fine fern. *L. dilata*, which in a large state nearly equals the Lady Fern in beauty, has several curious forms; the best are *compacta*, with very broad pinnae at the base of each frond, overlapping pinnules, and the pinnules run together in a leafy or almost leathery mass the greater part of their length; *grandidens*, distinctly toothed; *lepidota*, with triangular fronds very elegantly divided. But we come now to *Lastrea filix-mas*, the most useful of all the British ferns, because it will grow in any soil, and with no attention at all, is always graceful, almost evergreen in mild seasons, and constantly increases by spreading crowns, that it may be divided and divided *ad infinitum*. Here we have the lovely *cristata*, the finest hardy fern sport known; *paleacea*, with tree-fern like habit, and remarkably rich in appearance, owing to the abundance of its brown scales; *polydactyla*, a fine crested form; and *Schofieldii*, a diminutive form well adapted for Wardian cases. *Lastrea thelypteris* must not be forgotten by the cultivator of hardy ferns; it should be secured among the first select few in forming the collection, and the best place for it is in a moist shady sheltered nook in a rockery out of doors; wind and spring frosts are its principal enemies.

The British species of *Polypody* are all fine subjects; even the common *Polypodium vulgare*, growing in a large mass among the forks of a pollard alder, or covering a tree butt or rustic archway, is as handsome as any fern we have, especially when smothered with its orange-tinted fruit. We grow this commonest of ferns in large shallow pans filled with cocoa-nut waste, and it spreads rapidly and luxuriantly, and almost rivals *Davallia canariensis* when the pans are clutched all round with its tawny claws. *P. Dryopteris*, *phlegopteris*, and *alpestre* are all equally at home in the hardy fernery, or on rockwork under glass, and grow luxuriously in silky loam or leaf-mould. Of *P. alpestre* there are two well-known varieties, one of which, called *flexile*, is a very elegant object, the fronds prostrate, tapering, and lance-shaped, and of a delicate light green. *P. vulgare* is remarkably strong in varieties, many of them invaluable for decorative purposes, and for exhibition. We begin with *cambricum*, the well-known Welsh Polypody, with its broad fronds much divided, overlapping lobes, exquisite pale green colour. *Crenatum*, with its broad wavy fronds, is also a fine thing for pot culture, or for filling a conspicuous gap in a tree stump or bank. *Cristatum* is worthy of its name, a grand crested Polypody, often resembling the *Lastrea f. m.* of the same name, and as distinct as it is handsome. *Deltoidum* has noble fronds six inches wide, nearly triangular, the lobes very curiously toothed and cut, and of noble stature. *Omnilacerum*

is also of great width, with huge divisions, the lobes cut into slender ribands and the ends of each tapering to a point; this and cambricum are the choicest of the series.

Polystichum angulare, the soft prickly shield fern, and its handsome associates *P. aculeatum* and *P. lonchitis*, grow to grand proportions in the hardy fernery, and require scarcely any attention at all. Loam, peat, and even sweepings of the potting-bench, suit them almost equally well, provided they have plenty of water at the root, a shady position, and are safe from drip. *P. lonchitis* is the most particular as to soil, and will grow to the greatest perfection in a well-drained mixture of turfy peat and silky loam. The varieties of these species are less bewildering than those of some other British ferns. Of *P. angulare*, the best is *plumosum*, with very elegantly toothed lobes, richly crowded, and very symmetrical. *Concinnum* is a rival of the last, but distinct from it in its delicate shiny toothed and rich green colour. *Cristatum* is exceedingly fine, the fronds terminating in crests and tassels. *Grandidens* is beset with great gaping teeth, and is a good subject for culture in cases. *Latipes* is a giant with scaly stipes, the fronds thrice divided, and the pinnules with an ear-like lobe at the outer base of each; it is almost tropical in style of growth, and will always pay for pot culture. *Proliferum* is a great favourite with cultivators on account of the pretty appearance of the little bulbils produced on the pinnæ, and its truly graceful habit. *Rotundatum* is unlike every other British and exotic fern; the fronds are lance-shaped, the primary pinnæ of even width throughout, and the pinnules quadrant or crescent-shaped, and the terminal one of each set fan-shaped, or nearly elliptical.

Though the common Hart's Tongue, *Scolopendrium vulgare*, is the last of the species we shall have to name in this review, we are almost afraid to begin selecting, for there are no fewer than eighty-two varieties enumerated, and as we know most of them, and possess a considerable number, we should prefer to recommend the fern-grower to take them all for better for worse, and by the prices quoted in Mr. Sim's list, we find that a set of one of each would cost just £38 17s. 6d., which may startle some of our readers who happen to be novices in fern-growing. But we will endeavour to make a selection of the most curious and beautiful which are offered at moderate prices.

First for real beauty and a free-growing habit, *Crispum*, which is like the species in its general outline, but more stiff and erect, and beautifully waved and crisped from top to bottom. Next *Alcicorne*, with huge fronds, breaking at the summit into huge bifid or trifid segments or stags'-horns. *Polyscupis undosum*, the fronds terminate in twisted horns, so beautifully as to appear crested: a gem for pot culture. *Cristatum* makes a charming companion to *Polyscupis* for pot culture; it grows nearly erect, the fronds are wavy, cordate at the base, and at the summit spreading into broad semicircular fans. This does not attain any great size, has a lovely green hue, and is always barren. The finest of all the crested *Scolopendriums*, and the prettiest fern known for a pot specimen or

to plant out on a shady bank is *Ramo-marginatum*. This is of medium growth, very vigorous, and it throws up such a number of its curious and elegant fronds, that it soon forms a specimen arching over on all sides equally, and its characters are remarkably persistent and uniform. Sometimes the fronds divide into two or three forks each, terminating in a fan; they are all barren, and the colour is a fresh, lively green. *Marginata papillosum* is not a strong grower, but it is very peculiar. The fronds are narrow, and nearly the same width throughout; at the base they form a double crescent, the usual cordate form being exaggerated, and the result is a most beautiful and unique outline. *Marginatum* has fronds scarcely an inch wide, uniform in width throughout, texture rough, regularly crenulated, and underneath there is a skin-like line which breaks out into seed-bearing excrescences. It is very handsome, and makes a fine specimen either in pot or planted out. *Multifidum* is worth having; the fronds are like the species, but their points expand into three forks, flat and spreading. *Crenulatum* is a very fine variety, of robust habit, and richly waved on the margin. *Angustatum* grows tall and erect, with narrowish fronds, elegantly waved throughout. *Polyschides* introduces us to the class of diminutive *Scolopendriums*. Here we have narrow dark green fronds, deeply and irregularly notched. *Proliferum* is a diminutive of *marginatum*, growing less than two inches high, and the fronds often awl-shaped, or consisting of the rachis only; others slightly expanded, and bearing little plants: this requires a very damp, shady place, and best in the open air. *Vivo-marginatum* is the most curious of all the diminutive kinds; the tiny fronds are sometimes denticulate their whole length; others divide at the summit into three or four horns, and they are all of a dark green hue: quite a curiosity. *Cornutum* is very dwarf, coriaceous, with crenate and undulated fronds, which terminate abruptly. This is diminutive, and the colour a very dark bluish-green. *Laceratum* is one of the grandest of all, the fronds broad and frilled their whole length, and at the summit spreading into a fine frilled fan, which sometimes assumes most elegant cycloid outlines. *Digitatum* has the stipes branched and the fronds ending in broad flat fans of great size. *Fissum*, a large edition of *polyschides*, with deep marginal clefts, and very luxuriant in habit. *Macrosorum* between *marginatum* and *polyschides*, slightly branching, and the colour a rich deep green. *Rugosum*, with pouched fronds and deeply-cut margins, and with spines on the midrib. *Bimarginato multifidum*, with raised veins, forming pocket-like holes on the surface, and the point of each frond twice forked, and terminating in multifid fans. Lastly, *Glomeratum*, which grows for a short length like the species, then breaks out into a dense globular mass of divisions three or four inches in diameter, one of the most elegant and remarkable of the whole of this strange family.

S. H.

RECENTLY-INTRODUCED BEDDING PLANTS.



NOVELTY is attractive to some extent, irrespective of merit; if it were not so, there would be no disappointments. But people purchase and cultivate plants that are new, without waiting to learn on good evidence if they are good; and so it does not wholly rest with those who profess to keep experimental gardens to determine the exact values of newly-introduced plants. Many of our readers have, of course, been trying various of the new bedders this season, and therefore the existence of materials for a fair judgment upon them cannot be questioned. We should greatly esteem the favour of communications from readers on the characters of any new bedders they have growing; and in the meantime, we follow the custom of the FLORAL WORLD, and offer a few notes drawn from our own experiences.

GERANIUMS.—None of the highly-coloured variegated kinds appear to be so well adapted for bedding as the now well-established Mrs. Pollock. But in other sections there are some meritorious novelties. First amongst these we place the *Variegated Stella*, a most luxurious coloured variety, the new leafage having a subdued sulphur colour, which, as the leaves expand, changes to a clear cream. The habit is rather more dwarf and compact than that of *Stella*, as might be expected, and this, of course, is an additional recommendation. The flowers have not as yet been produced so plentifully as those of the parent; but probably, when we get *old plants* of *Variegated Stella*, we shall find them bloom as freely as *old plants* of *Flower of the Day*, and *then* this superb variety will enjoy the highest fame of them all. Saltmarsh's *Luna* has behaved in a remarkable manner at Stoke Newington. Its principal display is in the *early* part of the season, when the cinnamon zones and sulphur margins are truly splendid; and if flowers are allowed, they are produced in as great plenty as in any of the scarlet bedders known. Having taken some interest in the decoration of a friend's garden, this season, I determined he should derive the fullest possible benefit from two of the most beautiful geraniums known, and I therefore secured a good stock of well-hardened plants of both *Luna* and Mrs. Pollock, in 48-sized pots. The Lunas were plunged in the front of a ribbon line, at the end of May, and the others were kept in a sunny pit, with plenty of air. In the middle of July the Lunas were beginning to lose their brilliant colours, so I had them taken up, and put in the pit, and the stock of Mrs. Pollock were plunged in their place. At the date of writing this (August 18) the border is brilliant beyond all ordinary things. I abstain from describing it, because all we have to do with it now is as to the management of the two geraniums. *Bronze Shield*, sent out by Messrs. F. and A. Smith, is a very showy variety of the cinnamon zoned series; robust in habit, and keeping its colour well. *Rising Sun*, sent out by Mr. Turner, is likely to be a superb bedder; the margin is a rich gold yellow, with lively light brown zone. *Flower of Spring* and *Silver*

Chain are not sufficiently new to be entitled to any notice here, and I must pass them by with the remark, that they are two of the most effective varieties known, remarkably bright and clear in colour, and growing very compact. In the green and zone-leaved classes, one of the most useful novelties is Saltmarsh's *Little Treasure*, a variety fully as dwarf as Little David or Baron Hugel, with finer flowers than either of those varieties; in fact, with flowers as large, as stout, and as bright as those of *Attraction*. Beaton's *Rebecca* (Wm. Paul), a superb trusser, the colour purplish-red, is certain to become as great a favourite as *Christine* or *Trentham Rose*. It has an unusually rich appearance, owing to the decided shade of blue mingled with the deep, strong red. When contrasted with yellow or orange, this will probably show its blue tone more decisively than any other way. As to its habits, there could be nothing better. *Wiltshire Lass*, of Downie, Laird, and Laing, has proved a better bedder than any variety we possess in the *Christine* section. It produces enormous trusses in great abundance; the colour a clear, fresh, rosy pink, most delightful for grouping, and even for single specimens; well worth the best attention. Hibberd's *Kate Anderson* (B. S. Williams) has eclipsed all the scarlets for brilliant masses, partly owing to the dark zone and dull hue of the leaf and the brilliancy of the flowers, and partly, also, by its compact, neat habit, and the production of flower trusses in great profusion. It is peculiarly well adapted to place near stone-work, as in the case of requiring to decorate a terrace with pot plants, as well as for filling vases, etc., etc. Another in the same series is *H. W. Longfellow*, which proves to be the richest, most free and effective of all the salmon-coloured bedders. The introduction of large blocks of this variety would give a fine feature to geometric patterns, as it would bring out the blues and purples, harmonize with the reds and yellows, and render strong green tints additionally pleasing.

VERBENAS.—The two best bedders of the year are *Crimson King*, of Methven's, and *Fire Brigade*, of Kirtland's. There are many growers who fail with all kinds of verbenas, owing to some peculiarities of soil or climate. We advise all such to try *Fire Brigade* next season. It can endure any amount of heat and drought, if planted early. The flowers are stout in substance, and of a brilliant crimson scarlet colour; the habit of the plant compact and wiry, and needing no pegging. We have not seen its equal among hundreds of varieties, as a bedder, but for pot culture it is of no value at all. *Crimson King* is of bolder habit, and a deeper shade of colour. It is a decided acquisition, possessing all the qualities required in a bedding plant. These two are all that I can mention now as unquestionably good; but I will name one as unquestionably bad, and that is *Really Blue*, which is really a washed-out, miffy thing, that will disgust all who try it.

LOBELIAS.—Messrs. F. and A. Smith, of Dulwich, brought out a series of new lobelias, a few years since, all of which were distinct and good, but only one of them, *Blue King*, has taken a place among bedding favourites. These were all raised by Mr. Gordon, of the Crystal Palace, who has found *Blue King* one of his best kinds for

colouring, in the splendid works accomplished at Sydenham. The fact is, the old *Speciosa* is so good, that people are not in a mood to try any other. Yet they may take to Blue King with perfect safety. *Paxtoniana* is too well known to need a word of recommendation. *Snowflake*, brought out this season by Messrs. Lee, is not good. The growth is too wild and weedy, and the flowering not dense enough. Nevertheless, it is a pure white, and in some soils may be effective. Messrs. Dobson and Son, of Isleworth, have a very promising white, called *Miss Murphy*, which is likely to prove first-rate. But I shall say no more about it till this time next year, for it is impossible to give it a character, as a *bedder*, until it has had one season's trial. *Beauty of Rochester*, sent out by Illman, of Strood, Kent, is a pretty thing; but probably it has disappointed some who grew it, because of the smallness of its flowers. The colour is a genuine "heavenly blue," the habit rather wiry and spreading, and it keeps on blooming, as fresh as at the first start, until the very end of the season. I saw it several times in 1865, and have grown much of it in 1866, and I can strongly recommend it, though for close, sharp lines it is not so well adapted as *Speciosa*. Amongst our own seedlings at Stoke Newington, we have a superb cerulean blue, a clear silvery grey, and a pretty purple with white spot. We destroy hundreds that appear to be worth naming, and the three just mentioned are likely enough to share the fate of the rest. But I intend to give these three a fair trial next year, both in pots and beds.

PETUNIAS.—*Purple Bedder* (B. S. Williams) is one of the best ever raised for bedding purposes. The habit is tough and wiry short and compact. The flowers are small, abundantly produced, and a rich brilliant purple colour. No one can err in securing this variety, or in propagating it largely.

PENTSTEMONS.—Messrs. Downie, Laird, and Laing selected from a great mass of seedlings last year three superb varieties adapted both for borders and large beds. They are all the same height, all compact in habit, and all produce heavy masses of large finely-formed flowers. It would be a quite new and grand feature in a garden to appropriate three rows of a ribbon to these three pentstemons, or to plant them separately in a set of three large beds. The names are *John Bester*, puce blue; *Robert Parker*, rich rose; *Shirley Hibberd*, rose-pink.

DAHLIAS.—The new bedders in this class are all good. The most distinct amongst them are *Gem of Dwarfs* (Dean), two feet high, crimson, tipped white; *Little Beauty* (Rawlings), two and a-half feet high, crimson, with yellow base, distinct from all other dahlias, and remarkably brilliant and effective; *Queen of Roses* (E. G. Henderson), two and a-half feet, pure rose; *Scarlet Tom Thumb* (E. G. Henderson), fifteen inches high, bright scarlet. Tom Thumb and Little Beauty are the best two of all the bedding dahlias.

CALCEOLARIAS.—Mr. Watson has sent out some good calceolarias of late, but I have not grown any of them, and cannot report upon their merits. The only novelty in this way that I can speak of definitely is *Bird of Passage* (B. S. Williams), which is of fine

shrubby habit, compact, and a good grower. The flowers are lively orange-red, richer and more decisive than the colour of Prince of Orange, and the plant appears to have a more than ordinary good constitution, so that when other varieties are perishing, this will live.

A NOTE ON CALCEOLARIAS.

At page 256 I made a note on an experiment in the treatment of calceolarias at Stoke Newington this year. It is with much pleasure I can repeat what is there said, with one month's further experience. The plants are robust and full of health and vigour. I am satisfied that if they had been planted in the ordinary way in the common soil of the garden, we should have lost them in the same way as other people. In my travels hither and thither this summer, I have not seen one good example of calceolarias; everywhere death has thinned their ranks, and in some instances has cleared them off entirely by thousands. The lessons to be deduced from our experiment are that they should be struck in autumn; that they should be strong when planted out; that they should be planted by the middle of April or by the end of April at latest; that the soil should consist of three-fifths at least, and better if it consists of four-fifths, thoroughly-decayed manure, the remainder being good loam. Rank manure would, of course, ruin them; it must be three or four years' old, and if there is no loam admixed with it, the plant will not be harmed. But one-fifth of loam is advisable. With this treatment, I believe calceolarias will cease to trouble, and will begin to delight their cultivators.

S. H.

ON THE NAMING OF PLANTS.

(Contributed to the Botanical Congress by SHIRLEY HIBBERD.)



THE names of natural objects are important parts of the world's language, and good names are better than bad names, not only because of the constant value of appropriateness, but because of their immediate help in the diffusion of knowledge, and the fixing of facts in the minds of men. It may be said in a general way that all the good names of things are ancient, and all the bad names modern. The art of inventing names appears to have degenerated, for among the many things that discovery and invention have brought within our cognizance, and for which old names were not available, the names adopted are in the majority of cases neither well adapted to describe them, or give a key to their character, nor to in press upon the mind any distinct principle of association between the name and the object. In ancient times names were usually descriptive, and even the fanciful names had so much poetry in them that the mind could seize and keep them easily, and so they became deeply imbedded in the common vocabulary, and were in themselves educative, because they led the mind to the identification of the things they represented. *Leo*, *ursus*, *vulpus*, *bavis*, among animals, and *anemone*, *auricula*, *broom*, *amaranthus*, among plants, are names that have deep root in common speech, in rhetoric, in poetry, and are not despised in science. Such names as *blackbird*, *nightingale*, *sparrow*, *starling*, *beech*, *oak*, *willow*, in the vernacular, can never be changed, because they are good and infinitely more useful than their classical equivalents, because the common property of men who know the things they are intended to indicate, not so much from long use as from their applicability as indications. In any catalogue of plants to which we may refer, we may notice that the old names were usually descriptive and appropriate;

an element of poetry commingled with the task of naming them ; their names were formed upon their characters, or upon fanciful resemblances that were more or less obvious to all ; whereas modern names are too often recondite, or of such trivial significance or so absurdly simple as to be of no use whatever except to compel a derisive smile while they are uttered.

Amongst the most ancient names of plants, and those too that at the present day deserve fullest respect, we shall find a large proportion to have been in their day the exact analogues of modern vernacular designations. Take for example the names of plants in the *materia medica* of Hippocrates* and we find Elymus (Ελυμος), Asparagus (Ἀσπάραγος), Blitum (Βλίτον), Raphanus (Ραφανίς), Orobus (Ὀροβός), Cydonia (Κυδωνία), Mespilus (Μεσπίλα), Amygdalus (Αμυγδαλή), Sesamum (Σήσαμον), Strychnos (Στρυχνός), Cotyledon (Κοτυληδών), Cytisus (Κυτίσος), Polypodium (Πολυπόδιον), Centaurea (Κενταυρίον), Erica (Ἐρεϊκη), Helleborus (Ἑλληβορος), Crocus (Κροκός), and many other of the names that are best known not only to botanists, but to the mass of mankind through long usage, and their frequent occurrence in story and fable—Virgil, Ovid, and later poets have used them in descriptions of scenes and images that are among the world's best intellectual goods. We cannot now abolish these names. Their roots have, so to speak, struck deep into the mind of the human race, and we might as well hope to exterminate from our English language such homely names as rose, violet, primrose, and pimpernel.

In reviewing the names in the index of any list of plants, it may be observed that the names of plants admit of being grouped under two heads : one of them comprises such as may be called natural names ; the other comprises names that are strictly artificial. It need not be said that many names partake of both characters ; and when this is the case, it will generally be found that the generic name is natural and the specific name artificial—as, for example, *Mesembryanthemum Salmii*, a species named after Prince de Salm, and which might with equal propriety have been named after Prince Satsuma, or (as he was unknown in 1818, when the name was determined on) King Midas, whose long ears would no doubt have been gratified with such an honour. Among strictly natural names, we may select for illustration *Ranunculus bulbosus*, a name of great value to the young botanist ; *Anemone nemorosa*, *Ranunculus aquatilis*, *Helleborus foetidus*, *Hypericum perforatum*, *Nymphaea quadrangulum*, *Geranium sanguineum*, and *Helianthemum canum*. These are all more or less descriptive, and they seize upon characters peculiar to the species, and are useful because of their individuality. It does not follow, however, that we are to approve of all names founded upon natural characters, because the characters selected may be such as are common to many species of the genus, or characters which are likely to prove by no means distinctive when the genus has been enlarged by fresh discoveries. Thus, *Ranunculus bulbosus* is not altogether free from objection, because the plant so named is not the only bulbous-rooted species of buttercup. Such specific names as *longifolia*, *brevifolia*, *macrophylla*, *microphylla*, *grandiflora*, *pulchra*, *pulchella*, and *speciosa*, not to name a few others with which plant growers are but too familiar, are highly objectionable : they scarcely rise above the level of what is known in common parlance as “slang,” and at the best are but shop names, and their proper home is the nurseryman's catalogue, where an easy name, and one that will sell a plant, is invaluable.

But many as are the objections to natural names badly chosen, and the repetition *ad nauseum* of specific characters common to the various forms of species, still greater objections may be urged against names that are purely artificial. I do not propose to sweep these away in a ruthless manner, but I must protest against the increased adoption of them in the present day. Many of our good old names are artificial, as *Achillea*, *Amaryllis*, *Daphne*, *Dicksonia*, and *Mercurialis*. But those have at least the sanction of long usage. On scientific grounds, we may reasonably regret that they afford no information, and that in themselves they are inappropriate, and may be as well adapted to stand for trees as grasses, for plants that have flowers as for plants without flowers ; time alone makes them pass current, and they live by an act of concession. It has been the happy lot of a few great botanists to invent names that, though destitute of scientific value, nevertheless command respect, and

* I quote from Dr. J. H. Dierbach's “*Die Arzneimittel des Hippocrates*,” published at Heidelberg in 1324.

never give rise to perplexity by their peculiar association of mythological or historical names with the plants they stand for. Linnæus naming the *Andromeda* is an event full of poetry, and illustrates in a most happy manner the great botanist's quick perception of analogies, a quality in which he stands alone among the masters of modern science. Linnæus met with the plant on turfey hillocks in the midst of swamps abounding with toads and snakes, and he thought of the fair virgin *Andromeda*, chained to a rock in the midst of the sea, exposed to dragons and serpents. He observed also that in due time the heat of the sun dried up the swamps, and then the plant put forth its flowers, and smiled upon the spring with its cold classic beauty. So again he thought of *Perseus*, who in the fable comes to deliver the afflicted maiden from her enemies, and thus likening the plant to the mythological heroine he adopted for it her name, and by the elegance of the designation made ample amends for leaning to poetry rather than to philosophical technology. Among names of recent introduction, we may search in vain for an example which may be so fully justified by its elegance, where the descriptive element is altogether wanting. The great sin of modern botanists is the wholesale adoption of *commemorative names*. They have indeed in this practice some small excuse in the commemorative principle on which many of the best known names are founded. *Andromeda* is indeed an example. But there is one still more noteworthy; it is that of the genus *Linnæa*, which Linnæus named in commemoration of himself, and perhaps to remind future ages of his own early lot, describing it as a "little northern plant, flowering early, depressed, abject, and long overlooked." But the extent to which the commemorative principle has been carried is ridiculous. Botanists need not now examine the new plants they find or have submitted to them; they have only to remember the name of a friend if the plant is beautiful or sweet-scented, or of an enemy if it is ugly or emits a fetid odour. A plant comes to hand, the characters of which separate it from all known genera. The trouble of inventing a name by means of an exploration of Greek roots is saved, because the botanist has a friend named Smith to whom it would be agreeable to pay a compliment. So Smith furnishes the generic name. For the specific name there stands Brown, and the thing is done. By and by a variety of the species is met with, and again the process is repeated, and the variety is named after Jones. It is perhaps a fortunate thing for mankind that Adam had no ancestors and no brethren, for he might have named the lions and tigers and antelopes after such people as Methuselah, and Enoch, and Abimelech, for such names would no doubt have been common had there been a pre-existing population at the time when our great progenitor named the creatures. The good ancients of the truly classic period flung their heroes up among the stars, and the process was called an Apotheosis. We dash them down into beds of nettles, and bury them amongst the herbage before their time, that they may live with posterity in the names of plants, though perhaps they never lived for fame, and have no desire to do anything for posterity at all, not even to mock its understanding, or needlessly burden its memory. Among the reputed British species of *Salix*, there are no fewer than twenty-two named after persons or places, and not one of the names is so good as that devised by a humble botanist who, finding a plant he had never seen before, and having no means of ascertaining its name, called it, because found by the roadside, *Rhodium sidus*, as good a name perhaps as *Georgium sidus*, and one that might be adopted and pass current without raising a laugh. In the 21st volume of the third series of *Curtis's Botanical Magazine* (1865), there are figures and descriptions of sixty-six plants, of which no less than twenty-eight derive their specific names from places or persons; or, to be more particular, nine are named from the countries or districts in which they grow, and nineteen from persons. With all respect to the botanists present, I must say that these nineteen names at least are frivolous. Geographical names are, as a rule, not good. Very many of the plants found in Japan, and named (with how little effort!) *Japonica*, are also found in China; and species that inhabit both the old and new world cannot with any propriety at all have geographical names assigned them. If books of authority like the *Botanical Magazine* are thus open to animadversion, what shall we say to trade catalogues? What shall we say? I quit the unwelcome theme, and leave the trader in plants at his own free will to commemorate his relations, friends, and customers *ex officio*, for the simple reason that we are not bound to trade names, but we are bound to the names in the *Botanical Magazine*, and to all that come to us with the stamp of authority.

This consideration indeed opens up the grand point. When a plant has been named by a botanist of renown, the whole world is bound to accept the name given it. The world cannot do with names of plants as with metallic currencies. A sovereign from the English mint passes current anywhere, according to its value in gold; but a bronze farthing offered beyond the realm is scarcely convertible at its reputed value, for if put in the melting pot it can but produce a worthless "dump." It should be so with names. If they are good, the world should take them; but if bad, the world has a right to refuse, and there should be an end of that courtesy which botanists pay to each other in abstaining from re-naming plants because they have already been named "authoritatively." Why should a lover of plants be compelled to commemorate Jenkins, or Johnson, or Jeremiah, every time he mentions some new orchid, or palm, or pond-weed? Let any botanist recall his early days of hard study, and will he not remember how useful were good names, and how worse than useless bad ones, in his efforts to make out the boundaries of genera, and the distinctive characters of species? Will not the memory bear witness against the nomenclature which has neither the grapho nor the imago to vindicate it? Because it is not well to multiply names, and because synonyms are perplexing, and because any one may name a plant as he will, no new name ought to be accepted on the authority of an individual, however able and eminent. The plant may be better understood already elsewhere, and at all events it may have been already named. Almost every plant introduced within the past fifty years has half a dozen names, and the most dreadful confusion exists in some genera in which the reputed species are very nearly alike. We want a revision of names of plants, and this can only be done by an "assembled wisdom" of accomplished botanists, agreeing first to principles, and then in the most catholic spirit seeking to apply them, not for the gratification of personal whim, but for the service of mankind. Names are public property; he who purposes to invent them should first make sure of his ability to construct them in such a way that they will serve their purpose.

I propose that instead of accepting the names provided by individual botanists, that such names have only a provisional value. A new plant must have a name of some sort as soon as possible for purposes of identification and description. But we want a perpetual Board of Botanical Nomenclature to which all new names should be referred, and by which such names should be annulled or confirmed, as a mature consideration of characters may require. How often are plants named before the flowers or fruits have been seen? how often are they named from dried scraps sent home by travellers—nay, even from the descriptions of unpractised persons who find species they suppose to be new, and which accordingly have new names, and are afterwards found to be as old as any authentic name in the lists? How the Board I propose should be formed, and upon what principles it should act, I forbear even to suggest. I have perhaps said enough to render the solution less difficult, at least in theory, than may at first sight appear. The botanists present have their own matured opinions as to the value of descriptive names, and as to the plea that may be urged in behalf of commemorative names. I leave the question of principle to their consideration. As for the Board, it will probably occur to most of those who give the matter any consideration at all, that the great scientific schools should be all represented at it, and a very large proportion of the work could be carried on by correspondence. Suppose the leading botanists of various countries to be members of such a board, the scientific journals would place them *en rapport* as to the work in progress; their votes might be taken by the same means on important questions raised, and at stated times—say annually, biennially, or triennially—congresses such as the present might be called in London, Paris, Berlin, Petersburg, or even as far off as New York, and at such congresses whole batches of names could be revised, and a sort of *lex non scripta* could be enforced for the adoption of the names then and there agreed upon.

NEW PLANTS.



MECONOPSIS NIPALENSIS, *Nepalese Meconopsis* (*Bot. Mag.*, t. 5585).—

Papaveracæ.

This noble plant was originally discovered by Wallich, in Nepal, and more recently by Dr. J. D. Hooker, in Sikkim. It is a tall, robust, sparingly-branched herb, three to five feet high, full of orange-yellow sap. The radical leaves are petioled, one and a half foot long; the leaves on the stem sessile, all of them linear-spathulate, and pinnatifid. Flowers two or three inches in diameter, colour pale gold or sulphur-yellow. "A more stately and beautiful plant can hardly be imagined, except the hollyhock, which it somewhat resembles in miniature."

LOBELIA NICOTIANÆ-FOLIA, *Tobacco-leaved Lobelia* (*Bot. Mag.*, t. 5587).—Lobeliacæ. A stately herb, native of the Neil-



MECONOPSIS NIPALENSIS.

gherry and other mountains of the Indian peninsula, and of Ceylon. It is of stout habit, six to twelve feet high, stem as thick as the arm, leaves narrow, lanceolate, one to two feet long; raceme simple or compound, the branches a foot and upwards long, densely covered with close-set flowers, forming pyramidal summits of a pale lilac colour.



ANCYLOGYNE LONGIFLORA.

ANCYLOGYNE LONGIFLORA, *Long-flowered Ancylogyne* (*Bot. Mag.*, t. 5588).—Acanthacæ. A most beautiful plant, with something of the inflorescence of *Russellia juncea*, introduced from Guayaquil by Messrs. Veitch and Sons. The plant apparently suffruticose, leaves four to ten inches long, obscurely serrate. Flowers in a drooping, elongated branched panicle, one-eighth to one-fourth of an inch long; corolla cylindrical and tubular, bright vinous purple; anthers bright yellow. "It is undoubtedly one of the finest tropical Acanthacæ ever introduced into this country, and cannot fail to be a most important accession to our stoves."

MYRSIPHYLLUM ASPARAGOIDES, *Asparagus-leaved Myrsiphyllum* (*Bot. Mag.*, t. 5584).—Liliacæ. This pretty plant was

introduced so long ago as 1702, but has long since gone out of cultivation. It is

a native of various parts of the Cape of Good Hope colony, whence the plants lately flowered at Kew were sent by Mr. Cooper. It is a slender bright green greenhouse creeper; stems much branched, leaves (flattened branches) alternate, and, like those of *Ruscus*, inserted in the axil of a minute scale; flowers solitary, or in pairs or threes in the axils of the leaves, one-third of an inch long, pearly white or greenish. "We have no hesitation in calling attention to it, as one of the most elegant greenhouse climbers that can well be found; nothing, indeed, can exceed the feathery lightness of the plant when well-grown and flowered; and whether on account of its graceful habit, its flowering in mid-winter, the uniformity of its bright green foliage, and perfume of its pearly flowers, it is one of the plants best suited for table decoration and ornamentation generally, hitherto introduced."



LOBELIA NICOTIANEFOLIA.



MYRSIPHYLLUM ASPARAGOIDES.

KLEINIA FULGENS, *Brilliant-flowered Kleinia* (*Bot. Mag.*, t. 5590).—Compositæ. A handsome South African "succulent" plant, sent from Natal by Mr. Plant to the collection of W. W. Saunders, Gr., F.R.S. with whom it flowered in May last. It is suffruticose, two to three feet high, everywhere covered with a glaucous bloom, leaves four to six inches long, obovate-oblong, bluntly serrate; flowering peduncles erect, one-flowered, florets bright vermilion-orange.

FERNANDESIA ROBUSTA, *Stout Fernandesie* (*Bot. Mag.*, t. 5592).—Orchidææ. This, the largest of the genus, was originally found in Guatemala, by Mr. Skinner, and has been more recently obtained from the same country by O. Salvin, Esq., who sent some plants of it to Kew. It is nearly allied to the Brazilian *F. lunifera*, but is larger in all its parts, has sharp-pointed, instead of blunt leaves, and is furnished with an hexagonal instead of heart-shaped callus on the disc of the lip. It is easily grown in any house where Cattleyas or Oncidiums succeed.

SEMPERVIVUM PAIVE, *Baron Paiva's House-leek* (*Bot. Mag.*, t. 5593).—Crassulacææ. This hitherto-undescribed species of house-leek was discovered in the island of Gomera, one of the Canary group, by the Rev. R. T. Lowe, M.A., F.L.S. It forms a straggling tertuously-branched shrub, with a short stem and slender curved and pendant branches. Leaves highly glaucous, one to two and a-half

inches" long, half to one inch broad, spatulate in form. Inflorescence a panicle of rather large, green, scentless flowers.

SANCHEZIA NOBILIS, *Brilliant-flowered Sanchezia* (*Bot. Mag.*, t. 5594).—Acanthaceæ. A magnificent plant, discovered by Mr. Pearce in Ecuador, in 1863, and flowered in Messrs. Veitch's exotic nursery, Chelsea, in June last. It is a stout, erect, herbaceous plant, with oblong lanceolate leaves, three to nine inches in length, and erect, opposite bracteate fascicles of flowers, forming together a dense panicle, most brilliantly coloured, the bracts bright red, the corollas yellow.

SACCOLABIUM AMPULLACEUM, *Bottle-lipped Saccolabium* (*Bot. Mag.*, t. 5595).—Orchideæ. A neat, compact, and beautiful plant, native of Sylhet, where its season of flowering is the spring. It is of dwarf habit, not rising more than six inches high, usually with a simple stem. Leaves barely a span long, very thick, ligulate; flowers of a deep rose colour, growing in erect, axillary racemes, which are much shorter than the leaves. "It grows slowly, rarely producing offsets, but is easily managed. Nothing can be more charming than its bright rose-coloured racemes, which are freely produced, and last long in beauty."

PHORMIUM TENAX FOLIIS VARIEGATIS, *Variegated-leaved New Zealand Flax* (*L'Illust. Hort.*, t. 481).—Asphodelaceæ. The well-known and majestic *Phormium tenax* has proved hardy in so many instances in this country that we may reasonably entertain a hope that this magnificent variegated form of it will be equally capable of enduring the severities of an English winter. Apart, however, from that consideration, we must award to this plant the merit of being most distinct and beautiful, and one of the most valuable variegated-leaved plants in cultivation. It has been several times exhibited during the past two seasons by Mr. B. S. Williams, of Victoria Nursery, Holloway, and has never lacked admirers. The variegation consists of sharply-defined stripes of red, brown, yellow, and buff, alternating with stripes of rich dark green, the plant having all the grace and richness peculiar to the species.

CAMELLIA MARIANNA TALENTI (*L'Illust. Hort.*, t. 483).—A beautiful Italian seedling, lately flowered in the establishment of M. A. Verschaffelt. The flowers are large, with very broad petals, the colour deep red, with shades of cerise and narrow stripes of blush. The foliage is ample, handsome, and a fine deep shade of green.

THE BEST FIFTY HARDY HERBACEOUS PLANTS.



SHORT time since, prizes were offered for the best selections of herbaceous plants, to be published in the *Gardener's Magazine*. A considerable number of lists were sent in competition, and, as a "wind-up," a fresh selection from all the lists was made by "The O'Shane," who, no doubt, is the best authority on the subject in the country. The O'Shane's list was submitted to Mr. Niven, Mr. J. Backhouse, Mr. Tyerman, and other curators, collectors, and botanists, and the ultimate result was a list of one hundred species and varieties, considered most useful as hardy decorative plants for English gardens, and which was published in the *Gardener's Magazine* of June 23, 1866. From that list we select the names and descriptions of the "best fifty," and think it proper to add, that if any difficulty be experienced in obtaining any of them of local nurserymen, application may be made to Messrs. E. G. Henderson, St. John's Wood, London, or Messrs. Backhouse, of York, with a prospect of success. This is a good time to obtain and plant choice herbaceous plants in beds and borders.

Anemone Japonica, and varieties; native country, Japan; colour, red; time of flowering, autumn; height, two and a half feet.

Aquilegia alpina and *Californica*; Switzerland; blue; summer; one foot.

Delphinium, in splendid variety; Switzerland; blue; summer; three and four feet.

Helleborus niger; Mid Europe; white; winter; one foot.

Pæonia, in rich variety; summer; two feet.

Dielytra spectabilis; Siberia; purple; early summer; two feet.

Baptisia australis; North America; blue; summer; three feet.

- Coronilla varia*; Europe; pink; summer; one foot.
Galega officinalis, and its fine white variety; Spain; blue; summer; four feet.
Lathyrus grandiflorus; South Europe; purple; summer; four feet.
L. latifolius, and pure white variety; England; pink; summer; four feet.
Orobus vernus, and varieties; Europe; purple; spring; one foot.
Lupinus polyphyllus; Columbia; blue; summer; three feet.
Achillea Eupatorium; Caucasus; yellow; summer; three and four feet.
Aster versicolor; North America; white and pink; autumn; one foot.
A. lævis; North America; blue; autumn; two feet.
A. elegans; Siberia; white; autumn; three feet.
Pyrethrum roseum, single and double, in variety; Caucasus; red; summer; two feet.
Phlox, all the tall herbaceous varieties; summer; three and four feet.
Campanula carpatia, white varieties; Carpathia; blue; summer; one foot.
C. persicifolia, and varieties; Europe; blue; summer; three feet.
C. rotundifolia; red; spring and early summer; two feet.
Statice latifolia; Siberia; blue; summer; three feet.
Gentiana asclepiadea; Austria; blue; summer; two feet.
Iris pallida; Turkey; pale blue; early summer; three feet.
I. Germanica, in great variety; Germany; blue; early summer; two feet.
I. Florentina; South Europe; white; early summer; two feet.
I. variegata; Hungary; striped; early summer; two feet.
I. subbiflora.
I. flavescens; Levant; light yellow; summer; three and four feet.
I. amœna; Russia; blue; early summer; three feet.
Lilium excelsum; Japan; cream; summer; two feet.
L. longiflorum; China; white; summer; two feet.
L. chalcedonicum; Levant; scarlet; summer; three feet.
Tritoma glaucescens; South Africa; red; autumn; three and four feet.
Fritillaria meleagris, and its beautiful white variety, known to some as *F. præcox*;
 Britain; spotted; spring; two feet.
Narcissus poeticus; South Europe; white; spring; two feet.
Iberis Gibraltaria, syn. *corræofolia*; Spain; white; spring and early summer;
 one foot.
I. saxatilis; South Europe; white; spring and early summer; one foot.
Arabis albidia; Caucasus; white; spring and early summer; one foot.
Alyssum saxatile; Candia; yellow; spring and early summer; one foot.
Aubrietia purpurea; Greece; purple; spring and early summer; one foot.
Erigeron speciosus; California; blue; summer; two feet.
Centranthus ruber, and white variety; Britain; red; summer; two feet.
Potentilla, in fine variety; various; summer; two feet.
Pentstemon procerus; North America; summer; two feet.
P. gentianoides or *Hartwegii*, all good varieties of; Mexico; summer; two feet.
Tradescantia virginica; Virginia; blue; early summer; two feet.
Lythrum roseum superbum; Britain; red; summer; two feet.
Eryngium amethystinum; Mid Europe; blue; summer; three feet.
Dodecatheon Meadia, and varieties; Virginia; light purple; summer; one foot.

THE GARDEN GUIDE FOR SEPTEMBER.

FLOWERS OF THE MONTH.—*Greenhouse*: *Borbonica cordata*, *Arctotis decumbens*, *Gesnera discolor*, *Douglasii*, *Zebrina*, *elongata*; *Bignonia jasminoides*, *Venusta*, *Angophora cordifolia*, *Banksia verticillata*, *Nivenia spicata*, *Cobea scandens*, *macrostema*, *stipularis*, *Grindelia coronopifolia*, *Lambertii*, *Vinca pusilla*, *Meyenia erecta*, *Opuntia Dillenii*. Many of the Chinese primulas are now showing a fine bloom, and some of the species of *Cytisus* and *Coronilla* are now in flower.—*Garden*: *Pentstemon breviflorum*, *diffusum*, *Aster luxurians*, *multiflorus*, *inuloides*, *artimisiiflorus*, *Solidago procera*, *gigantea*, *Lysimachia ephemereum*, *Aconitum chinense*, *Anemone vitifolia*, *Japonica*; *Linaria vulgaris peloria*, *purpurea*, *Helianthus*—

linearis, giganteus, trilobatus, Veronica complicata, Rudbeckia fulvida, asperima, columnea, Vernonia angustifolia, oligophylla, serratuloides, Pyrethrum uliginosum, Hemerocallis Sieboldii.—*Ericas*: Oblonga, obtusa, peltata, infundibuliformis, amabilis floribunda, Farriana, versicolor major, verticillata major, Archeriana, carneola, exposita, flava imbricata, curvifolia rubra, exurgens major, Cushiana, Eweriana longifolia, mammosa, vestita mntabilis, Savileana, radiata, pellucida rubra.—*Orchids*: Renanthera coccinea, Trichopilia picta, T. tortilis, Stanhopea tigrina lutescens, Epidendrum vitellinum majus, Barkeria Lindleyana, Brassavola acanthis, Dendrobium Heyneanum, Huntleya marginata, Scuticaria Steeli, Cattleya bicolor, C. marginata, C. pumila, Eriopsis biloba, Iconopsis paniculatus, Lælia elegans Dayii, L. furfuracea, L. Lindleyana, Promenæ Rollisonii, Miltonia Clowesii major, M. candida and c. grandiflora, Peristeria guttata, Oncidium bicolor, O. crispum, O. c. grandiflorum, O. leucochilum, Stanhopea oculata, Zygopetalum intermedium, Z. maxillare, Z. rostratum.

GARDEN WORK.

Kitchen Garden.—As a rule, it is too late now to sow seeds, but as the season appears likely to be lengthened out, those who are short of useful things may sow collards, prickly spinach, cabbage, lettuce, and turnips. Should bad weather occur soon, these sowings will not come to much, but if we have a warm autumn, they will probably get strong enough before winter to pay for the ground they occupy. All crops coming forward, to stand the winter, must be thinned in good time. Good plantations of winter spinach may be made by planting out the thinnings during showery weather. Cauliflowers sown last month must be pricked out into winter quarters. All crops ready for harvesting must be taken up at the first opportunity.

Fruit Garden.—Strawberries may still be planted, but those planted last month will give better crops next season than plants put in now. Better late than never. Among the new sorts, *The Lady* is considered the most promising. We have been much pleased this season with *President*, which is a most productive variety of the finest quality. *British Queen* appears to require a ferruginous soil to prosper; on red lands, therefore, it may be planted with the best hope of success. *La Constante*, *Oscar*, *Eclipse*, and *Eliza* are first-rate useful kinds, and *Carolina superba*, though not everywhere fruitful, should not be forgotten by the lover of first-class fruit.

Flower Garden.—Now is the time to make notes for next year's decorations; and it is a good time to buy in hardy herbaceous plants for flowering in the spring. Messrs. Dillistone, of Sible Hedingham, Essex, Mr. Webb, of Calcot Gardens, Reading, and Messrs. E. G. Henderson, of St. John's Wood, London, are rich in choice spring-flowering plants. Daisies, polyanthus, primroses, and violets may be parted and planted now. It is time to begin potting geraniums that have been struck in the open ground, also to pot bulbs of all kinds for the greenhouse. Cuttings of roses may still be made, and will soon make roots, if shut up rather close in frames; better with a mild bottom-heat than without it.

Greenhouse and Store.—Work is rather slack in these departments now, but there is something to be done. Get ready for housing tender plants; put cinerarias and primulas in a good place near the glass. Grapes to hang must be kept dry and shaded. Always get them well ripe and finished before suffering the house to go dry; the act of ripening should never be artificially delayed. The early vinery must be cleaned up, and the vines started at 55° or thereabouts.

NEWS OF THE MONTH.

TAUNTON HORTICULTURAL SOCIETY.—The first exhibition by this newly-formed Society took place in the Vivary Park, kindly lent for the occasion by Dr. Kinglake, on the 16th of August. It was the occasion of general public rejoicing, business being suspended, and the whole town embellished with banners and evergreens, and at night there was a grand display of fireworks. The exhibition filled a series of tents, and comprised good examples in great plenty of every department of horticulture. Amongst the more noticeable contributions were great collections of ornamental plants from Messrs. Veitch and Messrs. Pince and Lucombe, of Exeter; Mr.

B. S. Williams, of Holloway; Mr. Drummond, of Bath; Mr. Nelson, and other great trade exhibitors. In Mr. Williams's lot was a fine plant of variegated *Phormium tenax*. In Messrs. Veitch's lot we noticed *Adiantum Farleyense*, a superb species, with large fringed pinnules. Amongst private exhibitors, J. B. Saunders, Esq., the honorary secretary, took a leading position with some splendid groups of stove and greenhouse plants, and also contributed the best specimen fern, which was *Adiantum cuneatum*. Other successful exhibitors of plants were Captain Carew, E. A. Sanford, Gr., J. Parsons, Gr., T. B. Uttermare, Gr., H. Fox, Gr., Mr. Peter Taylor, F. W. Newton, Gr., and E. E. Richards, Gr. Novelties were not plentiful, but conspicuous amongst them was a new variety of *Enonymus Japonica*, with broad leaves superbly variegated with rich gold stripes and margins. The judges were—Mr. Shirley Hibberd, of London, Mr. Dadds, of Bristol, and Mr. Welsh, of Weston. Very much of the labours devolved upon the honorary secretaries, Messrs. Saunders and Kingsbury, who were indefatigable in their exertions, and succeeded in giving perfect satisfaction.

WILLESDEN HORTICULTURAL SOCIETY.—The second annual exhibition by this Society took place in the grounds of Harlesden House, Harlesden Green, by the kind permission of T. N. Kerr, Esq., on the 2nd of August. The show occupied two large tents, one being filled with plants and flowers, and the other with cottagers' productions. Two large and splendid groups of fine foliage plants were contributed by Mr. Kilby, nurseryman, and Mr. Poole, gardener to T. N. Kerr, Esq., these two exhibitors being placed equal first. In these collections were examples of *Pandanus Javanicus*, *Cissus discolor*, *Cyperus alternifolius*, *Caladium Belleymei*, *Chantini*, and *Argyrites*; *Croton variegata*, and other handsome subjects. Messrs. A. Henderson and Co., of Edgware Road, contributed some of the finest subjects from their splendid collections, amongst them *Brassia Lawrencei*, *Ixora aurantiaca*, *Allamanda grandiflora*, *Alocasia macrorrhiza variegata*, etc. Mr. Vileon, nurseryman, of Edgware Road, sent a noble group of palms, including *Latania Bourbonica*, a Date palm, a *Seaforthia*, and others. In the class for stove and greenhouse plants, Mr. Poole took first place with a pretty collection, in which we noticed a good example of *Clerodendron Kempferi*. The same exhibitor was also first for an extra collection of foliage plants, and first in the classes for *Fuchsias*, *Dahlias*, and *Hollyhocks*, showing in each case charming examples. In the class for *Achimenes*, Mr. Daphne, gardener to Mrs. Finch, took first place with a very pretty lot, including *Ambrose Verschaffelt*, *Lepmanii*, *Grandiflora*, *Longiflora major*, *Igneae*, and *Mauve Queen*—the last having flowers of great size and fine quality, distinct in every way from all other varieties in cultivation. The best grapes came from Mr. Sanders, who showed *Bowood Muscat*, *Muscat Hamburgh*, and *Frankenthal* in excellent condition. There were some excellent balsams, a good sprinkling of ferns, cut flowers, fruits, etc. A conspicuous feature amongst the miscellanies was a model of a bridge by Mr. Sanders. This had the merit of being in the best possible taste, and the design such as could be carried out with no deviation from the model. The work was wholly done in cement, and consisted of two embankments clothed with ferns and grasses, a single arch bridge with light stone handrail, and a bright pebbly piece of water in which were a few gold-fish. The judges were Messrs. Hibberd and Robinson.

TO CORRESPONDENTS.

DISEASED VINE.—*Clericus*.—The principal cause, probably the sole cause, of the bad condition of your Muscat of Alexandria is the outside border. This noble grape is one of the most difficult to grow well, and to have the roots in an outside border is a sure way to spoil it. The constitution of the vine is tender, and the roots need warmth as much as the canes, leaves, and berries. The samples sent were such as we frequently receive, and invariably discover when sufficient particulars are afforded, that the mischief originates in a cold state of the roots. Moreover, your Norfolk climate is quite unsuited to this grape, unless you have an inside border (and better if the border is heated), and use fire till the middle of June, and even later in the event of a bad season. Where Muscat of Alexandria cannot be

well done, Chasselas Musqué is no mean substitute for it, and we are glad to hear that it does well with you. Your letter came too late for reply in the August number. That it was not answered privately must be ascribed to want of time, and not to want of politeness.

SELECT ROSES.—*T. R. Lee.*—If you want a very select 18 hybrid perpetuals for pot culture, you cannot do better than take the following:—Beauty of Waltham, Madame Cambaceres, Madame Victor Verdier, Olivier Delhomme, Charles Lefebvre, Centifolia Rosea, Duc de Rohan, Princess Mary of Cambridge, John Hopper, George Paul, Dr. Andry, Jules Margottin, Duchesse de Caylus, Madame Derreux Douville, Baron A. de Rothschild, Madame Moreau, Marguerite St. Amand, Madame Charles Wood. It has been impossible of late to answer correspondents privately, on account of our many engagements.

VARIOUS.—*Commelina.*—The flowers were shrivelled and shapeless, but from what we could make of them they appear to belong to the classes under which "the old gardener" places them—Damask and Hundred-leaved.—*Amateur.*, etc.—It is quite impossible to give the names of varieties of geraniums from leaves and flowers sent by post. We could name hundreds of varieties for you if we saw the plants, but after being pressed and dried in transit, and then remaining at the publishers a few days before we see them, etc., etc., the identification is beyond the power of any ordinary mortal.

BULBS FOR PRESENT PLANTING.—*Robert.*—It scarcely matters what you buy in the way of hyacinths, early tulips, and crocuses, for none of them are bad. If you want cheap and effective kinds to use in quantities, the following will suit admirably:—*Hyacinths*, Amy, crimson; Baron Von Tuyl, blue; Charles Dickens, lilac; Emicus, blue and white; Grand Vainqueur, white; Herstelde Vreede, dark red; L'Ami du Cœur, red; Madame Hodgson, pale pink; Orondates, porcelain blue; Voltaire, blush. *Early Tulips*, Canary Bird, yellow; Couleur Cardinal, dark red; Couleur Ponceau, crimson and white; Gesneriana, crimson scarlet; Lac Van Rhyn, purple and white; Standard Royal, white and crimson; Yellow Prince, gold and yellow. *Crocus*, Large yellow, Cloth of Gold, Albion, striped; Ne plus ultra, clear blue; Queen Victoria, white; Sir Walter Scott, white and blue; Prince Albert, purple. Any of the first-class houses will supply these at the following rates:—Hyacinths, 4s. 6d. to 6s. per dozen, or 25s. to 35s. per hundred; tulips, 1s. to 2s. 6d. per dozen, or 7s. to 15s. per hundred; crocuses, 2s. to 3s. per hundred, or 15s. to 30s. per thousand. The following are the best hyacinths for exhibition and conservatory decoration:—*Single red*, Amy, Cavaignac, Cosmos, Duchess of Richmond, Florence Nightingale, Howard, La Dame du Lac, Lina, Reine des Jacinthes, Solfaterre, Von Schiller. *Single white*, Alba supersissima (this is the best of all the whites); Grandeur à Merveille, Madame Van der Hoop, Mont Blanc, Queen of the Netherlands, Tubiflora. *Single blue*, Argus, Feruck Khan, Grand Lilas, Lord Palmerston, Mimosa. *Single black*, General Havelock, Prince Albert. *Single mauve*, Haydn, Honneur d'Overveen, L'Unique. *Single yellow*, Heroine, Ida. *Double red*, Koh-i-noor, Lord Wellington, Milton, Regina Victoria. *Double white*, La Tour d'Auvergne, Prince of Waterloo. *Double blue*, Blocksberg, Garrick, Laurens Koster, Murillo, Van Speyk. The majority of these may be obtained at from 1s. to 3s. 6d. each, but a few of them will cost from 10s. to 21s. each, and it will be well, therefore, to consult a catalogue as to prices. It is impossible to make a better selection; we happen to be familiar with almost every variety in cultivation, and the above is such a selection as we should make for ourselves, were quality and variety of the first importance, and price a secondary matter. Early single and double tulips are admirably suited for decorative purposes in spring. The *doubles* are coarse, sometimes vulgar, but they are tremendously showy, and we cannot do without them. The best are La Candeur, Duke of York, Blue Flag, Purple Crown, Rex Rubrorum. The following *singles* are suitable for pots, as indeed are all those in the first list:—Thomas Moore, Proserpine, Pottebakker (white and yellow), Molière, Rose Luisante, Queen Victoria, Archduc d'Autriche, Cardinal's Gold, Couleur Cardinal, Le Matelas. The following varieties of *Polyanthus narcissus* are superb, and cost only 3s. to 6s. per dozen:—Bazelman major, Gloriosa, Grand Soliel d'Or, Paper White, Queen of the Yellows, Staten-General. The pretty *Narcissus juncifolia* is a gem for pots. We put a dozen of the little bulbs in 48-sized pots, and have a stock sufficient to make a line in a long border, when the plunging begins in spring.



ROCKWORK AND COMMON BRACKEN, FROM A SKETCH MADE AT STOKE NEWINGTON.

THE FLORAL WORLD

AND

GARDEN GUIDE.

OCTOBER, 1866.

THE BRACKEN.



HOPE to remember to the end of my days the great playground where, when a very small boy, I made acquaintance with the glories of the Bracken. My playground comprised the whole extent of Wanstead Flats, and Epping and Hainault Forests, where, forty years ago, the abominable process of "enclosing" had scarcely commenced, and we used in the summer to ramble free and unchallenged over miles and miles of ling, tormentil, cinquefoil, and elastic fescue-grass; and in the tender days of spring hunt for violets, primroses, and wild hyacinths in the bosky dells where thrushes and blackbirds hid themselves to sing, and the giant oaks threw their dark arms about to protect the solitude from unseemly invasion. The oaks are felled, the thousands of acres of furze and broom, and holly and blackberry, the millions of alders, the deep ferny water channels where the snake basked in the sun, and the dry hummocks where the rabbits gambolled at dusk—all, all are "enclosed;" that is to say, stolen; and where Beauty reigned in calm security, Wrong has established an infamous court, and the people have lost their forests, that a few thieves, known in their several districts as "gentlemen," might enjoy uninterrupted possession of ill-gotten lands. The statute of Merton is the darkest blot on the British book of laws; it has given the power of plunder to a class already well possessed, and fulfilled, in the interests of Satan, our Saviour's words, "To him that hath shall be given, and from him that hath not shall be taken away even that which he seemeth to have." The poor are now shut out from the green dimples and flowery slopes, where, but a few years since, the humblest toiler might thank God for a breath of bracing air and a contemplation of Nature's loveliness. Those forests have shrunk to such miserable proportions, and are so cut up with new roads, fraudulent fences, and new landmarks, which greed has designed to screen from view the extent of the wrong, that none who knew them forty years ago could view them now without the heart-ache. My heart ached lately as I drove through spots where in years gone by, sylvan beauty entranced the artist and filled the dreamer with a new joy, and found, instead of

gnarled oaks, and clumps of hollies, and cloud-aspiring elm and ash, and a thousand song birds carolling happily, the new villa with its impudent frontage, the newly-railed-in garden, robbed without apology from the poor; the wretched line of dirty little shops, where one might well believe poison to be cheap and bad change plentiful in every till. Nine-tenths of all those enclosures are no more warranted by the spirit of English law than the murder of an unoffending man upon the highway: the statute of Merton has furnished the Shibboleth under which, as by an act of perjury, the people have been robbed of a precious property, and all the means of innocent and healthy recreation, so needed by the toiling thousands of the great metropolis. It is some comfort in the face of wrong to know that there is an element of retribution in the Divine economy.

If I could forget all this, I would say something about the beauty of the bracken as I knew it in days of yore. It is beautiful now, but it does not charm me as it did when I looked upon it as a mystic thing, as the weird whisperer of the forest solitude, the possessor of magical powers, and the peculiar friend of fays and fairies. Yet though use has tarnished the freshness of feeling in the presence of so lovely an object, I must confess that I am moved when as in these autumnal days I can stand above a great wild hollow and see a hundred acres of bracken tinging the slopes with dull green, bright orange, softened amber, and rich umber hues. I saw this in the middle of July, 1863, when a sharp night-frost swept over the green hills of Surrey, and tinged all the brakes in the woods and hedgerows prematurely with the tints of autumn. In flying through the country by railway there are few glimpses of scenery more refreshing than when we come upon a great open waste, all hills and hollows, smothered all over with stunted brake growing in clumps in just the same way as the brambles grow, though sometimes they carpet the ground uniformly, and their rich, deep green colour, and their diversity of outlines and shadow, suggest ideas of freedom, of frolicsome abandon, of health and appetite, of the odour of wood fires, and the sweet fatigue that lulls us after a long day's roaming in the woods. I should be afraid to inquire for even a moment into the impressions the bracken has made on the minds of poets, for it would lead me into the great garden of English literature, to be lost at last in the far reaching of the subject. But I remember Shakespeare took heed of its dense, sombre leafiness and hid Demetrius in its shadow, when playing the coward to sweet Helena. The rascal Puck thought of brakes, briars, and bogs as the hardest things to penetrate. Our most picturesque of poets, Scott, gives reality to many a scene by the introduction of the brake, glorious sign as it is of unmolested Nature, and the wild growth of things that disdain the help of man. When Rhoderic Dhu calls up the clan, it is from "shingles grey" and from "bracken bush," and when the vision vanishes the sunbeam glances for a moment on plumes and plaids—

"The next, all unreflected, shone
On bracken green and cold grey stone."

It is a good service that the brake or any other fern renders us if it revives passages in past readings, and passages in our past life. There is scarce a plant among the thousands that interest me in my garden but has a tale to tell, or about which there are associated remembrances which the heart will not willingly let die. It was because of my intense love of this haunter of solitude that I planted it in a nook of my rockery, close beside the little garden-house where I write during many hours daily all the summer long. From my seat I look into this very nook, and I have by degrees become so fascinated with it that I have had it figured, and here offer it to our readers as another instalment from my garden. It must be distinctly understood, however, that, although I have indulged in a little sentiment, the subject having carried me away, something practical is to be said, and that something I hope will be useful.

It is proper to state, first, that the figure does not indicate the extreme luxuriance of the bracken at Stoke Newington. The picture would have been a mere confusion, had any attempt been made to represent the dense mass of gigantic fronds with which this nook is filled. When the sketch was made, therefore, an immense quantity was cut away, leaving a few distinct fronds for Mr. Damman to transfer to paper. It is understood that many fern-growers make no progress with this fern; it is represented that it is one of the most difficult to cultivate; that, like many of our rampant-growing weeds, removal to a garden is death to it. This is all sheer nonsense; the brake grows in a variety of soils, it spreads fast, it possesses an almost exhaustless vitality; there is scarcely a garden in any part of Britain but in which it would grow if treated with a little skill.

The Brake or Bracken, *Pteris aquilina* of Linnæus, and the majority of British botanists, is a very distinct and noble fern, varying much in stature and character, yet easily identified under all the changes to which it is subject. Its most distinct structural peculiarity is the production of sori on the underside of the margins of the pinnules. The rhizoma is thick, velvety, and fleshy, and creeps underground, so that when once the fern has established itself, it spreads fast, and throws up fronds far away from the parent stool. The fronds are usually of a deep green colour, the smaller fronds nearly triangular, and they all branch freely and regularly; indeed, the branching character is one by which this fern may be known by the most inexperienced observer, for it is the only British fern so distinguished. Large fronds are usually wedge-shaped. The fronds represented in the sketch attained this season a height of eight feet. On poor soils the growth is stunted; and many readers of this will remember that the lovely patches of bracken on Hampstead Heath are not more than two feet high. The hard, glossy, leathery texture of the fronds contributes in a great degree to the beauty and distinctness of this fern; but its fine, deep green, glossy hue in summer is far surpassed by its beautiful tawny hue in autumn.

I have never purchased or collected this plant. It has, in fact, forced itself upon me, for it has always been a weed amongst the

rhododendrons, the roots being introduced in the loam and peat from Wanstead, which we use commonly for special purposes in cultivation. Hundreds of times I have taken up plants in the height of summer, and potted them, and once had enough to make a great bed, which for a few weeks had a very pretty appearance. In the rockery there are banks consisting wholly of the mellow, silky loam from Wanstead. In one corner, as elsewhere, ferns of many kinds were planted three years since; but in the midst of them appeared a single frond of bracken, which sprang from a scrap of root brought in with the soil. It was allowed to live, and the next season tufts of bracken appeared, and grew five feet high. In the spring of the present year the whole bank was covered with its woolly and very peculiar callow fronds. Not one was interfered with. It not only covered the whole bank, but pushed through, and put up fronds on the other side of the bastion; and in the course of this season its luxuriant growth has well-nigh killed out every one of the ferns that occupied the nook previously. In the course of three seasons it has travelled a distance of nine feet from the spot where the first growth appeared, and its rich appearance has secured for it an immunity that no less elegant plant could possibly have enjoyed.

If we examine the soil of places where the brake grows wild, we shall find that the best examples are in mellow, fertile loams. The grandest brakes are those that arch out from half-wild hedgerows in damp, shady lanes, where the soil is loam inclining to sand, though in loam inclining to clay it often attains a gigantic stature. It will grow well in spongy peat; it will not grow well in chalk; it scarcely thrives in any common garden soil, and it is never met with in standing water. Shade, moisture, and a nourishing mellow soil are the conditions under which it attains to its utmost perfection. The stunted brakes on open commons are usually in hungry sands, though when fully exposed to sunshine, it does not attain a great height, even in the best soils. I have often seen the brake prove a troublesome weed in newly-made lawns; but the constant use of the mowing machines triumphs over it at last, and in two seasons it may be annihilated. There is one more point in the cultivation of the brake that requires mention, and that is, that when growing luxuriantly it requires support. When towering up like a palm in the midst of brambles and hedgerow timber, it has abundant support; but when growing luxuriantly in an isolated position, it no sooner attains its full splendour than the winds lay it low, and drabble its lovely fronds in the mire. The cultivator must afford support, whether the plants are in the rockery or in pots. In the first instance the simplest method is to run a few lengths of tarred string horizontally across and across amongst the stems. This is the plan I am compelled to adopt, to save my glorious tufts from being blown down. A few hooks are inserted in suitable parts of the brickwork, and the cords are made fast before the fronds need them, and when the brakes are in full beauty the supports are invisible. When grown in pots, light painted sticks should be used, and when carefully tied, a good pot specimen of *Pteris aquilina* grown under glass, is as beautiful as any fern ever seen.

There are not many varieties, and amongst them not one worth describing. I have seen lately at Enfield a variety called *repens*, which only differs from the type in the fact that the fronds sprawl about, the stalks being more lax than usual. The variety called *integerrima*, the secondary pinnules are entire on the margin, whereas in the type they are deeply pinnatifid. The variety *crispa* has crenate margins, but is not constant under cultivation. *Multifida* is almost a prize, the pinnæ being freely branched and forked, but it does not retain the character when cultivated. The American varieties do not differ in any essential degree from our own. So, with the real, original bracken this story begins and ends; and I am inclined to think (and, of course, to hope) that the poverty of the narrative will be forgotten in the glory of the theme. SHIRLEY HIBBERD.

NOTES ON A FEW USEFUL BULBS AND TUBERS.



RANUNCULUSES ALL THE YEAR ROUND.—It is pretty well known that a deep moist loam, annually enriched with manure, and an open sunny position, are requisites in the culture of the ranunculus. There have been published treatises on the subject in former issues of the FLORAL WORLD, and I therefore abstain from attempting to deal with the whole subject, but shall occupy a small space to say what I believe has never been said before, that ranunculuses may be had in bloom all the year round. It has often been observed that the roots may be kept in the drawer for two years, and then if planted will grow well. Reflecting upon this, and being an admirer of these splendid flowers, I some years ago devised an experiment. I planted out of doors in October, February, March, April, May, June, July, August, and September. I did not experience unvarying success, but neither did I have any serious failure. Those planted in October and February bloomed in May and June; those planted in March and April bloomed in June and July; those planted in May and June bloomed in August and September; those planted in July bloomed in October. There my out-door flowers ceased. But I kept the succession going by the use of frames and pits in this wise. I kept some roots in silver sand beyond the season of planting a year and a half; that is to say, fresh roots now on sale should be kept till 1868. A few of course will die, but that is no matter, they are cheap, and we can afford to lose them. In the month of August pot a large lot, and another lot plant in a bed in a frame. Keep the potted roots in frames until they have begun to grow freely, then remove them to the greenhouse, a few at a time, and they will bloom beautifully in October and November; those in the frame coming in during December, January, and February. As beds of ranunculuses are not usually planted till February, I shall endeavour in good time to prepare a few notes for such of our readers as intend then to make plantations.

TUBEROSES AS WINTER FLOWERS have been the subject of an interesting experiment at Stoke Newington this season. I was led to this through the frequent reception of complaints from readers of the FLORAL WORLD, that the bulbs did not flower in spite of every care. I obtained from Messrs. Barr and Sugden fair samples of all the tuberose in the market, the cheapest, the dearest, and those midway between cheap and dear. I may as well dismiss one point by saying that the cheap bulbs were utterly worthless, there were no flowers in them, so of course none could come out. Well, these bulbs were sorted into several lots. Some were started in gentle bottom-heat in January, and flowered beautifully in June; the large bulbs, measuring nearly two inches across, producing fine flowers, those an inch and a half produced flowers less fine, and a few failed to flower, the smaller bulbs produced leaves only. To buy such bulbs is to throw money away. So far good; we learnt definitely the cause of the failure so often complained of by our readers, but that was not sufficient. I reflected that tuberose would be valuable from October to Christmas, or later, whereas in June there are so many flowers that we are not much in need of them. So I kept back a large lot of each of the several sizes, and had them potted the first week in April in a mixture consisting of equal parts peat, loam, and leaf soil, with a half part of silver sand added. The soil was nearly dry, and no water was given. The pots were all placed on the path of a Paxtonian house, and they had a little water during the six weeks they remained there, but enough only to moderately moisten the soil; generally speaking, they were nearly dust dry during the six weeks they remained there. Then they began to show little green points at the crown of each bulb, which was a proof they were growing. I then placed them high up on a shelf to benefit by the heat of the sun acting on the pots, and gave water twice a week. By the middle of June they were growing freely; they were then removed from the shelf and stood on inverted pots on the bed of the house full in the sun, and had plenty of water. By the middle of August the flower-spikes of all the large bulbs were pushing freely, and on this 18th of September, the day on which these notes are written, many of them are showing the white of their flowers, the spikes being three feet high, others are about half grown. The next point of importance will be to prevent them being injured by cold, for a certain degree of warmth is necessary to induce the flowers to open. I shall now put a few at a time into a warm house to expand the flowers nicely, and if the weather should become too cold for those still advancing, the Paxtonian house must have the benefit of a little warmth from the hot-water pipes. Thus it is proved that they may be flowered in autumn without bottom-heat, and that the only way to be sure of bloom is to obtain the largest bulbs. The small bulbs commonly sold at three shillings a dozen are absolutely worthless; double or treble that price must be paid to ensure a fine bloom. Since these experiments I have referred to several essays on tuberose culture, and I am bound to say that, with very few exceptions, what books say on the subject is sheer nonsense.

EARLY TULIPS AND FLORISTS' (LATE) TULIPS.—These are two valuable sections of bulbs for the decoration of the garden. Selections have been published so often, as I see by referring to past volumes, that I shall not lengthen out this paper by giving any names. Fortunately they are all good, so it scarcely matters what sorts people purchase. What I have to say about the early tulips is that they may be flowered in beds and borders in time to be removed to make room for the ordinary summer bedders, but that a better way is to plant them in such a manner that they may remain in the ground two or three years, the geraniums, verbenas, etc., etc., being planted between the rows of tulips, so as to avoid the necessity of disturbing them. What splendid things they are in pots is well known, such sorts as *Van Thol*, *Pottebakker*, *Rex Rubrum*, *Trionon*, *Yellow Prince*, and *Proserpine* being grown in thousands for Covent Garden Market. And as telling secrets seems to be my province, this time I will tell you how the market growers manage them. You will observe that a market specimen of *Van Thol* consists of three bulbs in a five or six-inch pot, all the flowers in exactly the same degree of expansion, matching so well that a person uninitiated is sorely puzzled to know how the thing is done. In private greenhouses we see pots of tulips with the flowers in different stages of advance, some full out, others half out, and so on, the bulbs in a pot refusing to move precisely at the same pace. This would never do for market growers, and so you will say they hit upon a plan of inducing the bulbs to break into bloom all together in an even race. No, dear friend, they do not, they cannot; they accomplish by stratagem what skill is quite unequal to. They plant all their bulbs in beds of turfy loam in pits, greenhouses, and the open ground. When preparing to send to market they take up such as have the flowers half expanded—you know the stage of expansion I mean; it is when the flower is about the shape and size of a walnut, and not at all expanded to a cup. They pot these three in a pot to match exactly, and then go to market with them and astonish mankind with apparent evidence that the bulbs obey their bidding and flower to the very hour they are required.

You will suppose, perhaps, that I cannot say anything about the Florists' tulips—the tulips that have figured in history, and for single bulbs of which infatuates have bartered lands, houses, cattle, money, and peace of mind; you will suppose that I cannot speak of these without pretending to be very learned, and without becoming elaborate and tedious. Nothing of the sort. What I have to say is this, that plain people, who do not intend to sacrifice their days and nights, and more money than they can afford, to the growing of late tulips, ought nevertheless to have them, because of their gorgeous beauty. It is easy enough. I see good mixtures quoted in Carter's catalogue at half-a-guinea a hundred. These will produce flowers as good for garden decoration as bulbs of *Charles Williams*, which are now selling at twenty-one pounds each. If you want names, precise markings, characters suitable for pedantic discussions, you must become a tulip grower, which means that you must rob your family, enjoy the headache, and become a slave to

roots that would not nourish you a single hour if you and your tulips were together cast upon a desert island. But to have all their splendour at a trifling cost, prepare a four-feet bed, or even a narrow border—perhaps a border with some shrubs in the rear is the proper place for this business. Sandy loam, well manured, is all you want. In this plant your cheap mixtures, six inches apart, six inches deep, and leave them alone four years. Then take them up, separate, replant, give away the surplus, and go on as before. You will be a tulip-grower minus the madness: who can object to *that*?

DAFFODILS.—All the varieties of *Polyanthus Narciss* make beautiful subjects for pot culture. They require the same soil and treatment as hyacinths, and the number of bulbs put in a pot must be regulated by their size. A fine bulb of *Grand Monarque* will require a six-inch pot. The following are the most distinct and noble—*Bazelman Major*, *Gloriosa*, *Grand Monarque*, *Grand Prince*, *Soleil d'Or*, *States General*, *Double Roman*, and *Paper White*. For open borders the following are beautiful—*Incomparable*, *Orange Phœnix*, *White Dutch*, *Van Sion*, *Common Daffodil*. The best way to deal with them is to plant them in clumps of half-a-dozen to a dozen bulbs in shady borders, and not to disturb them for the next seven years at least. The gardeners are so fond of digging borders, however, that you may think yourself fortunate if they are not all chopped into mincemeat within a year of being planted. It would do incalculable good if some lover of flowers would chop one of these border-diggers into mincemeat, as a caution to the rest!

THE ROMAN HYACINTH is a small white bulb, which produces small spikes of snow-white flowers, or small spikes of blue flowers. They are grown in vast quantities for Covent Garden Market, and may always be found in wedding bouquets during winter and spring. As trade articles they are scarce, the market growers usually monopolize the supplies. Pot them as soon as they can be obtained, plunge them with two inches of cocoa-nut fibre over their crowns, and, as soon as the green spikes peep through the material, take them out and put them in frames and greenhouses. If a very early bloom is wanted, pot in August, and, when well-rooted, put them in gentle heat, and they will bloom in November. As a border bulb, Roman hyacinths are most useful, and the way to treat them is to plant four inches deep, and leave them undisturbed for several years.

CROCUSES suffer much by being kept out of the ground till late in the season, and with being lifted before the leaves have died down: Plant them three inches deep in clumps or lines, and leave them untouched three years, then divide, manure the ground, and plant again. Nothing to surpass common white, yellow, and blue for the open ground, but the named varieties should be used for pots. Put five bulbs in a five or six-inch pot, using rich sandy soil, and treat the same as advised for hyacinths. If no room for them in the greenhouse, they can be flowered well in a frame. The following are splendid varieties, *La Majesteuse*, *Sir Walter Scott*, *David Rizzio*, *Mont Blanc*, *Cloth of Gold*, *Ne Plus Ultra*, and *Queen Victoria*. Any of these may be had in bulbs as large as walnuts—and the larger the

better—at from 3s. to 6s. per hundred. The price of the common kinds is 1s. 6d. to 2s. 6d. per hundred.

IXIA AND SPARAXIS.—These have of late years become general favourites, and deservedly, for their graceful outlines and lovely colours are scarcely surpassed by any other class of flowers. They are nearly hardy, and will do well in a warm, sheltered, well-drained border, consisting of equal parts sandy peat, sandy loam, and leaf-mould, if planted six inches deep. When grown in pots, the protection of a frame is all they require, with abundance of water when growing freely. Greenhouse treatment is scarcely good for them; they become infested with vermin if kept too warm, but, on the other hand, they cannot endure much frost. Put three to five bulbs in a five or six inch pot, and let them be covered one inch with soil, so as to have as great a depth as possible for rooting. The following are lovely—**IXIAS**: *Bucephalus*, *Crateroides*, *Elvira*, *Golden Drop*, *Lady Slade*, *Pallas*, *Plautus*, *Titus*, *Brutus*, *Wonder*. **SPARAXIS**: *Emilius*, *Grandiflorus*, *Leopard*, *Maculata*, *Napoleon III.*, *Tricolor*, *Victor Emmanuel*. When planted in open borders in cold districts, it would be well to cover the beds with straw, or boughs of spruce, during frosty weather. In Jersey and the West of England they grow with great luxuriance in the open ground.

SIBERIAN SQUILL.—This lovely subject is well adapted for small beds and margins of large beds in the parterre. It is amenable to pot culture, but does not make much show unless seen in large mass. Any tolerably good sandy loam will suit it admirably, and, if planted among herbaceous plants, and left untouched for several years, it will contribute wonderfully to the beauty of the garden in the season of spring. The most distinct and beautiful varieties are *biflorus*, *siberica*, *campanulata*, *campanulata alba*, and *Belgica*.

A FEW FOR CHOICE BORDERS.—*Triteleja uniflora* is a lovely gem, quite hardy; it blooms in April, the flowers are white, with a band of pale blue on each segment, and emit an agreeable perfume. As it is a native of South America, the patches should be marked to facilitate the placing of some slight protection over them during very severe weather; or, better still, put a cone of coal ashes over each clump when planted, and remove this in February. *Bulbocodium vernum*, planted on the margins of beds, between rows of crocuses, produces a charming display of rosy pink flowers early in the year. It is as hardy as chickweed. *Colchicum autumnale* ought to be in every garden, in spots not likely to be disturbed, as its lovely flowers appear in the decline of the season, when dark days and long nights begin to make an end of most other flowers. The winter aconite, *Eranthus hyemalis*, is an exquisite gem for beds and borders, producing pale yellow flowers, close to the ground, in January and February. A good clump of it gives the idea of a golden pavement such as Dick Whittington dreamt about. A few more notes on these things next month.

S. H.

THE CHOICE GARDEN.—No. I.

HARDY HERBACEOUS PLANTS.



THE Editor has requested me to furnish a few notes on very choice subjects of an inexpensive nature, adapted to the requirements of ladies and gentlemen who do not keep many gardeners, or possess costly stoves and greenhouses for the culture of rare exotics. Having been in the midst of such things, and having the care of many large collections, both here and on the Continent, during many years past, I have great pleasure in complying with the Editor's request.

I will begin by saying, that to grow herbaceous plants in a satisfactory manner, a good deep sandy loam and an open, sunny position are the first requisites. To be sure, many beautiful subjects will grow in the worst of soils and the worst of situations; as, for example, Solomon's Seal, one of the most elegant plants in English gardens, will thrive in the deepest shade and the most trashy soil. So of many other things. Nevertheless, for anything like a collection, the beds and borders require to be exposed to all the winds of heaven; they should not be overshadowed by trees; they should be well drained, yet naturally retaining a certain degree of moisture all the summer, and in the first preparation a liberal dressing of manure should be deeply dug in, and the soil left quite rough until the time of planting. The month of October is the best in the whole year to prepare the beds and borders, because bedding plants can then be taken up, and, if desirable (and it is *very* desirable), a variety of early-flowering bulbs may be planted with the herbaceous plants; and November is the best time to plant both classes of subjects. Just in time, therefore, for everything needful. If the work cannot be done now, the preparation of the ground may be attended to any time during winter, and the planting may be performed in February; but I say emphatically, now is the time to prepare for a display which shall begin with the dawn of spring, and change continuously all the summer long, and even show some gaiety in the gloomy months of late autumn and winter.

There are two points of the utmost importance—first, as to the disposition of the ground; and second, as to the order of the planting. The elaborate parterre is not adapted for such mixtures as we contemplate in our herbaceous garden, though many of our hardy herbaceous plants are invaluable in the parterre—as, for example, *Delphinium formosum*, *Alyssum saxatile*, *Aubrietia purpurea*, *Iberis saxatilis*, *Arabis albida*, *Tritoma glaucescens*, and others, which may be used as true bedding plants with the most splendid effect. But I confess that I enjoy these things best when mixed without plan, when thrown together as Nature plants her wild-flowers in the hedgerows, and with a background of shrubs to give relief to their colours, and with clumps of trees to separate the different borders, and clumps from each other. By this plan, there is always something to charm the eye, and every separate spike or umbel is seen

to the best advantage. Long experience in the midst of every kind of floral display has made me very indifferent to gorgeous effects of the true bedding school. They are too much like fireworks, and it would be better, I think, if they were as evanescent, for it is very wearisome to see for months together the same great patches and belts and mixtures of dazzling colours, composed of a few varieties of plants that have really no grace or interest at all to recommend them. But I have been cautioned to give my knowledge freely, and not to obtrude my opinions, because tastes differ, and every possessor of a garden has the right to order his or her enjoyments at discretion, to which canon I cheerfully subscribe.

For a good collection, then, I should prefer an irregular garden, with patches of green turf, clumps of trees and shrubs, broad and narrow borders, isolated patches, a few mounds rising to belts of shrubs, so as not to look like mere heaps of dirt, and one or two large beds, on which to make a special display of plants notable for beauty, yet so different to things commonly used for display, as to be at once novel, peculiar, and interesting. Respecting such things I shall have some special remarks.

As to the arrangement of the plants, that, like the disposition of the ground, must be matter of taste. There is, in fact, only one serious remark to be made upon this subject, and it is this, that at the time of planting the planter must know what height the several subjects will grow to, or some little things will be lost, and some large things will be made obtrusive and inelegant. When *Tritoma uvaria* is seen at some distance, and its fiery flowers glowing like a burning torch ("torch-lily" is a good name for it) against a background of shrubs, its appearance is stately and magnificent; but when leaning forward in the front of a narrow border, it is far less beautiful, and gives one an uncomfortable idea of the danger of being burnt in passing it. Not much can be done to contrast colours in these collections, because plants in the same row, of different colours, will for the most part bloom at different seasons. However, as a large proportion of these plants bloom in June and July, it is well to arrange them so that they contribute to each other's beauty. The scarlet *lychnis* shows well beside a clump of *Lysimachia thyrsiflora*; blue and white *aconites* help each other; the gorgeous *pæonies* show to great advantage in clumps unmixed with other flowers, or in the fronts of borders which have backgrounds of shrubs or ivy. To regulate all these matters is impossible, and, fortunately, not desirable, as it is the employment of the mind in inventing and arranging that ladies and gentlemen desire, quite as much as the gratification of the eye by various displays of colour.

Next to the foregoing considerations the most important is the protection of the plants from vermin. This subject may appear to belong to the after details of individual cultivation, but in reality it must be thought of *now*, and for this reason, that herbaceous plants may be planted in positions where it is impossible to protect them from the ravages of vermin, and in such a case the labour and money are lost, and a most interesting subject is brought into disrepute. Let me cite an example. An amateur holding a pretty garden which

was divided from another by an old privet hedge, determined to plant a collection of the best herbaceous subjects. He knew the hedge was inhabited by thousands of snails, and he thought that by vigilance he would gain the mastery over them, and save his plants. So perhaps he might have done, if the hedge had been all that he had to deal with. He forgot that the next garden received but little attention, was almost run wild, and was in fact a great nursery for snails, slugs, earwigs, woodlice, and every other plague that brings death to choice plants. He planted his collection on a border, to which the dividing hedge served as a background; the vermin found out his treasures, they poured in and devoured nearly one half of the collection, which comprised several hundred choice species and varieties. Such things as *Fraxinella*, *Saponaria*, *Delphinium*, *Antirrhinum*, *Lychnis*, *Pentstemon*, and *Phlox* are devoured at once and lost for the season, and when those are gone less palatable things suffer. In such a spot, however, many charming things can be grown. Snails and woodlice care very little about primroses, so that a collection of the choicest double kinds may be planted in the midst of hungry vermin. *Lily of the Valley*, *Solomon's Seal*, *Anemone Japonica*, *Callirhoe digitata*, *Ranunculuses* of many kinds, and a hundred other good things that I hope to name as I go on, will not be harmed by snails, and are therefore useful in gardens unhappily circumstanced in respect of vermin. An open, sunny spot, removed from the shade of trees, and exposed to all the winds of heaven, is that which will best suit the majority of the plants, and in such a spot there will be less vermin of all kinds than near walls, fences, rockeries, rooteries, and other such harbours for marauders.

I presume I may say a last word as to effect. There are many subjects adapted for bold clumps, and, if well managed, produce a splendid effect. A dry, sandy, sunny bank covered with clumps of *Sempervivums*, *Sedums*, and *Antirrhinums* would make a beautiful change as an interruption to the formality of beds and borders. But in planting a long border for effect I should proceed in this way. I should first determine how many and what kinds to have of showy *phloxes*, *delphiniums*, *pæonies*, *pentstemons*, *lilies*, *tritomas*, and other plants that are distinct and striking, and mark off places on the border in order to repeat them all through. For example, if I have a border a hundred feet long, I would plant ten clumps of white *Lilies* at ten feet apart; midway between them ten clumps of *Phloxes* ten feet apart, these to be nearly the same height, and selected for colour rather than form; midway between these, clumps of *Delphiniums* and *Aconites* of tall growth, and so on, filling in with all sorts of odd things of the same or nearly the same height. So in a line in advance of those I would have ten clumps of herbaceous *Pæonies* at ten feet apart; midway between them ten clumps of *Dielytras*, and so on again, filling with odd things, of which one or two specimens were sufficient. These repetitions would have a fine effect in the season of flowering of each kind, and hard formality would be prevented by the admixture of all sorts of things with them; patches of scarlet *Lychnis*, dark red *Fraxinella*, yellow

Enotheras, and so on. After one special display had waned another would follow, and the changes of the border would charm the possessor a thousand times more than the most elaborate bedding display, at only a thousandth part of the cost for a similar extent of ground. Would I not match a line of *Alyssum saxatile*, glittering like gold, alternating with *Aubrietia Campellii* and *Morei*, against the best geranium composition ever seen? Would not patches of *Campanula carpatica*, alternating in the same line as the last, give blue in autumn not to be surpassed for purity and depth, and *Campanula rotundifolia*, white and blue of such exquisite beauty in the summer as to render such a border a most lively comment upon the lines of one of your English poets.

"A thing of beauty is a joy for ever :
Its loveliness increases ; it will never
Pass into nothingness ; but still will keep
A bower quiet for us, and a sleep
Full of sweet dreams, and health, and quiet breathing,
Therefore on every morrow are we wreathing
A flowery band to bind us to the earth."

It was through reading a translation of that in my own German tongue that I first became impassioned to study your language, and as I went about the garden in my fatherland, did con much the lessons that now enable me to enjoy your society and your books. If God spares my life till another month, I will go on with this subject.

KARL PROSPER.

CULTIVATION OF SHOW TULIPS.



ON referring to the past eight volumes of the FLORAL WORLD which you so kindly sent me, I do not find any treatise on the cultivation of the tulip as a florists' flower. As it has long been one of my best favourites, and I have sought information from every possible source relating to its history and culture, it occurred to me that as the season for planting is near at hand I might pen a little treatise which might be practically useful to some of your readers, and in some way interesting to many who have no particular wish to cultivate this flower. And first, while thanking you for the volumes, let me testify as a practical man to their high value as a body of original and useful information on horticultural matters, which I am sure cannot be surpassed, and which I think cannot be equalled by any similar periodical work ranging over the same space of time. Many of the essays on matters of taste in gardening read as fresh as if written but yesterday, and as for matters of fact, why, facts are never stale to those who want them, and I hope by frequently enjoying the perusal of the volumes during the long evenings to reap the benefit in the management of my garden next year. On the management of florists' flowers I can presume to teach, but on gardening generally, and especially on the disposition of colours and the management of useful fruits, I am desirous to learn. By the way, what a nice present

to a friend at Christmas would be the first eight volumes of the **FLORAL WORLD**!

Let us say very little about the value of tulips. There are some now catalogued as high as twenty guineas each, but beginners need not be afraid of prices, because the good old cheap kinds, the names of which are celebrated in the annals of tulip culture, are beautiful and indispensable even in the most costly collection. Those who will pay twenty guineas each for tulips this season, must have such cheap sorts as Polyphemus, Strong's King, Rose Bacchus, Gloria Mundi, Brilliant, etc., etc., and bulbs for a bed of sixty rows can be obtained of such growers as Mr. Lawrence, of Hampton, and Mr. Turner, of Slough, for from fifteen to twenty pounds. As there are seven bulbs in a row, this is at the rate of ninepence or tenpence each all round. This statement may be information to many readers who suppose a fortune to be required for the purchase of a bed of tulips. Of course at such a price, rare kinds cannot be had, and many first-class sorts average five shillings to twenty-one shillings each; nevertheless, the named kinds are all good, and when obtained at such a cheap rate as I state, will make a splendid display, and when the cultivator has become used to them, other varieties of more costly quality can be added as desired. A few pounds spent every year in improving the collection, will bring a good return in the interest that will be created in watching for the flowers of the latest acquisitions, and in admiring them when they are out.

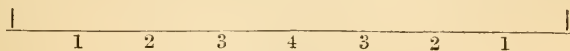
There need be no quackery in the growing of the tulip. It is quite hardy and well able to take care of itself, if provided with reasonable accommodation. There are a few points, however, of great importance. The bed should be in an open, sunny spot, with some kind of shelter from north-east winds, and there is no better shelter than a mass of trees and shrubs, far enough off to cast no shadow on the bed, yet near enough to break the force of the blast and warm the air that passes through. A belt of shrubs twenty feet wide will raise the temperature on the leeseide of them four or five degrees on a keen windy day in March, solely by checking the movement of the wind. In a coppice it will be found to be quite mild and pleasant on a day when in open meadows the wind cuts like a knife, and the frost is unbearably severe. Shade will not do for tulips; the drip of trees will not do; fresh air and sunshine are indispensable.

But there is a matter of still more importance, and that is drainage. I find in one of the early issues of the **FLORAL WORLD** a note by Mr. Chitty on the importance of drainage, and he cites a case in illustration. In my early days I lost a valuable collection through making my bed in a damp position. A very wet winter followed, and the bulbs were rotted in the ground. If the position is naturally well drained, be content; but if not, make use of pipes *to carry the water away*. Do not trust to a substratum of brick-bats as some foolish people: brick-bats below a bed do not carry the water away, they simply hold it for the injury of whatever the bed contains.

The soil best suited to the tulip is a free, fertile, sandy loam. If there is no suitable soil in the place, procure, if possible, the top spit

if a good pasture. This ought to lay in a heap for three years, and it is then first-rate for tulips. You will see near field gates in most parts of the country, great heaps of grass turf, twitch, and other gatherings from the field. Generally speaking, when these heaps are well decayed, they are unequalled for a tulip bed. If the loam contains plenty of decayed fibre, animal manure is not wanted, but if it is poor, a fifth part of very old hot-bed manure may be mixed with it with perfect safety, but it must be thoroughly decayed or it will do mischief. In making the bed, if the soil on the spot is suitable, dig it two feet deep, and break it up well. If it is not suitable, take out the soil two feet deep, and fill in with the selected soil. The bed must be four feet wide, and of any length you please. It is a good plan to make a short bed and lengthen it from year to year as the stock increases. This is better than aiming at too much in the first instance. If you should be persuaded to soak the bed with strong manure water before planting, you may expect bad flowers. I mention this, because in some parts of the country a fallacy in favour of the process prevails. Don't do it; the tulip does not require stimulants. The best way to keep up the bed is to enclose it with boards placed on edge, these boards should be one inch thick, and four and a half inches wide: they are to be fixed half an inch deep in the ground, so as to stand four inches above the level, and the bed is to be made up to the level of the boards within an inch or so; in other words, the bed is to be raised above the level and enclosed in a sort of box. Before planting let the bed be forked over again, and raked to a nice convex outline.

The first thing preparatory to planting is to mark the edge of the board both sides of the beds, at intervals of six inches. At each mark there will be a line of bulbs six inches across, consisting of seven bulbs. The *rows* are counted lengthwise. The flowers next the edge are the first row; those next towards the centre, the second row; the next the third row; and the centre flowers form the fourth row; thus:—



It will be understood that the fourth row should comprise the tallest flowers, the third the next tallest, and so on, to the edge. On referring to a tulip catalogue, it will be seen that figures are attached to the names; those figures are to indicate which row the variety should be placed in, but the rule need not be followed strictly; for second row flowers may often be put in first or third row, third row flowers in second row, and so on. As a rule, however, the figures are a guide to the heights, but a strong bulb of a first row kind will generally grow taller than a weak second row, and so on.

It is necessary now to say that tulips are divided into three classes: namely, *Roses*, which have a white ground and crimson, pink, or scarlet marks; *Byblomens*, which have white grounds and purple, lilac, or black marks; *Bizarres*, which have yellow grounds and marks of any colour. There are various ways of arranging them, but the

best is to place them alternately from the first to the fourth row, and then to reverse the order to the other side, so that one side of the bed is a counterpart of the other. This may be illustrated by a table, thus :—

| | | | | | | |
|------|------|------|------|------|------|------|
| Rose | Byb. | Biz. | Rose | Biz. | Byb. | Rose |
| Byb. | Biz. | Rose | Byb. | Rose | Biz. | Byb. |
| Biz. | Rose | Byb. | Biz. | Byb. | Rose | Biz. |

The process of planting may be explained in a word. Prepare a straight lath long enough to reach across the bed. Mark it accurately at intervals of six inches. Lay it down from a mark on the board to the corresponding mark on the board opposite. With a piece of stick of suitable size make a hole at each mark on the lath, throw in some silver sand, and then insert the bulb with the crown four inches below the level of the bed, and fill up with silver sand. Many growers reject the sand because in their districts it is expensive. But then in very wet winters they have losses which probably amount to quite the value of the sand, so I do not think upon the whole they are gainers. Every loss makes a gap in the bed which is unsightly, and the sand is a great protection ; therefore I advise the use of it. My bed is now like potting compost owing to the annual introduction of silver sand during several years past in the process of planting.

I abstain from discussing the properties of the tulip because of the length to which this paper has already extended. For the same reason I say nothing about the awning which is to protect the flowers, though I may on a suitable occasion give a figure of my own, which is all that can be desired for comfort of inspecting the flowers. But I will give a list of cheap first-class sorts, which every beginner should possess, as they stand in the foremost rank at all our great exhibitions. It must not be supposed, however, that those named below can be had at an average of ninepence each ; they will range from half-a-crown to five shillings each, or thereabouts.

A SELECTION OF 175 VARIETIES OF SHOW TULIPS.

BIZARDS.

First Row.—Albion, Dr. Horner, Goldham's Fortunius, Golden Fleece, King of Tulips, Marshal Soult, Osiris, Roi de Navarre, Grocm's Rubini, Sir Edward Codrington, Lawrence's Solon, Lawrence's Selim, Stein's Napier, Telemachus, Clark's Ulysses.

Second Row.—Ariadne, Apollo, Bizard Le Kaine, Coronation, Charbonnier Noir, Captain White, Darius, Lawrence's Glencoe, Gloria Mundi, Lawrence's Ostade, Optimus, Lyde's Oddity, Pilot, Lawrence's Peacock, Strong's Titian, William IV.

Third Row.—Carter's Leopold, Charles X., Captain Sleigh, Delaforce's King, Lawrence's Fabius, Lord Strathmore, Lord John Russell, Magnum Bonum, Milton, Ophir, Polyphemus (feathered), Polyphemus (flamed), Prince of the Netherlands, Strong's Hero, Salamander, Walker's King.

Fourth Row.—Dickson's Duke of Devonshire, Lawrence's Donzelli, Emperor of Austria, Lord Collingwood, Proteus, [Sharp's Victory (*alias* Sultan), Lawrence's Sheet Anchor, Warsaw.

BYBLEMENS.

First Row.—Bienfait, Chellaston Beauty, Euclid, Gloria Alborum, La Belle Narine, Parmigiana, Goldham's Prince, Queen of the North.

Second Row.—Lawrence's Friend (*alias* Addison), Brown's Wallace, Bijou des Amateurs, Bloemart, Cleopatra, Countess of Harrington, Lawrence's Diogenes, Euterpe, Gibbons's Enchantress, Grand Monarque, Irelandois, Ivanhoe, Joseph Strutt, Lalla Rookh, Lewald, La Virginitie, Lawrence's Lord Stanley, La Joie, La Latier, Malibran, Maid of Orleans, Mentor, Gibbons's Purple Perfection, Penelope, Prince Charles, Reid's Prince Albert, Willmer's Queen Victoria, Queen Charlotte, Rubens, Smith's Wellington, Superb et Noir, Victoria Regina, Violet Blondeau, Violet Rougatre, Winifred, Zoe.

Third Row.—Acapulca (*alias* Roi de Siam), Gibbons's Britannia, Black Bagguet, Cincinnatus, Colossus, Desdemona, Duc de Bordeaux, Duc de Bouffleurs, Gibbons's Elegans, Franciscus Primus, Grotius, General Barnevelde, Grand Sultan, Holmes's King, Lawrence's Lady Errol, Lawrence's Lord Hawkesbury, Michael Angelo, Miss Porter, Princess Charlotte's Cenotaph, Princess Royal, Lawrence's Patty, Lawrence's Priam, Tintorette.

Fourth Row.—Ambassador, Alexander Magnus, Lawrence's Camarine, Captain Lampson, Commodus, Lawrence's Elthiron, Louis XVI., Saint Paul, Thalia, Violet Quarto.

ROSES.

First Row.—Scarnell's Bijou, Cerise Blanche, Catalina, Fleur des Dames, Kate Connor, Madge Wildfire, Rose Juliana.

Second Row.—Aspasia, Andromeda, Cerise à Bella Forme, Comet, Lawrence's Cymba, Duchess of Newcastle, Groom's Duchess of Sutherland, Dutch Ponceau, Slater's Fairy Queen, Goldham's Maria, Lawrence's Lady Waldegrave, Clark's Lavinia, Mary Lamb, Mason's Matilda, Perle Brilliant, Perle d'Orient, Rose Imogene, Triomphe Royale.

Third Row.—Lawrence's Aglai, Anastasia, Claudina, Lawrence's Duchess of Clarence, Fanny Cerito, Lord Byron, Rose Camuse, Rose Brilliant, Rose Galatier, Lawrence's Mary Anne, Rose Cordelia, Rose Walworth, Thalestris.

Fourth Row.—Lawrence's Clarissima, Comte de Vergennes, Lawrence's Emily, Madame Vestris, Mountain Sylph, Midland Beauty, Prince, William IV., Rose Blanca.

J. WALSH.

THE CULTIVATION OF THE MUSHROOM.

BY A MARKET GARDENER.



PERSONS intrusted with the management of private gardens may well complain of occasional failures in the cultivation of mushrooms, for we fail sometimes, and there is a sort of "luck" about the business even in the best managed places. I have had clever men on my grounds, who could do everything except grow mushrooms, and could never learn that business, though there is as little to learn in it as any of the most simple operations that occur in the round of the seasons. One great advantage we have over private growers is, first, full command of every kind of material, and, secondly, the carrying out of the operations on a large scale. Large beds, well made, keep such a genial heat, that, with good manure and good spawn, success is pretty certain. Small beds cool quickly, and, in small places, the grower is often obliged to use manure that has become too much fermented, and so his best efforts are in vain. The best prospect of success is where a man can select the manure as it comes from the stable, or, better still, in the stable itself, and the mushrooms ought to be grown in a house adjoining the stable, if possible, or, if there is plenty of room, it may actually be done

amongst the horses, and the heat of their bodies will do instead of hot-water pipes. I am not joking, for I know a place where a stable was fitted with shelves from floor to roof, and these shelves were covered with a curtain. On withdrawing the curtain there was such a display of mushrooms as would startle people unaccustomed to the possibility of growing them in such a way.

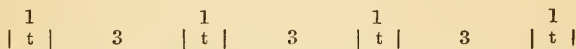
Now let me endeavour briefly to advise how best to grow mushrooms on a small scale. The best way of all is in a dark, warm, unventilated shed, with a brick wall at the back. The droppings should be raked together in ridges every day or two, until there are sufficient for a bed. While they are accumulating, they should be turned over and drawn up in small heaps or ridges again, every two or three days, to prevent a rapid fermentation. When there are sufficient of these heaps to make a bed, wheel into the shed as much turfy sandy loam as will equal one-third the bulk of the manure, and mix all together, and allow the mixture to remain in one heap for two days, which will cause a gentle fermentation to commence. Provide for the bed some kind of support in front, such as rough boards or turf sods; make the bed four feet wide, four feet high at the back next the wall, and sloping to two feet in the front. It must be in a condition of equable moisture throughout, neither wet nor dry, and, in the process of making, it must be frequently beaten down to render it quite firm. Were I to make up such a bed, I should know, by long experience, to what temperature, within a degree or two, it would rise, and I should probably insert the spawn the same day as the bed was made. But I cannot advise a beginner to do this, the safer way is to wait a few days, and then insert a hot-bed thermometer, to ascertain what is the heat inside the bed; if it is over or under 80°, wait a day or two longer. By that time, if the heat has *increased*, all is well, you will have a good bed. If it has *decreased*, you will never get mushrooms, and the best way to proceed is to take it to pieces, mix with it a good fifth or fourth part of fresh droppings—you must always be collecting these, fresh and fresh, and keeping them under cover—and make up the bed as before. The heat will certainly rise now. When at between 70° and 80°, insert the spawn in pieces the size of hens' eggs, about six inches apart and three inches deep. I have known one piece of spawn as thick as my fist suffice for a bed five and twenty feet long, and many a good crop have I taken from beds that were never spawned artificially; for, when properly managed, the material itself is generally rich in spawn, which may be seen running through it in the form of grey filaments. When the spawning has been accomplished, spread over the bed two inches of nice clean sandy loam.

If the place is warm and rather dry, cover the bed with some clean hay or straw; if the place is damp and cold, do not put on straw, but lay some rough boards over if you have them, supporting the boards on small flower-pots. I have found that if hay or straw get full of mildew the flavour of the mushrooms is impaired. I never water a mushroom bed until I have seen fruit on it, then if rather dry I water moderately with tepid water.

Now I will tell you how to make one bed serve all the year round

without any more spawning. But I must first premise that in the usual way as soon as one bed comes into bearing, another bed should be made to succeed it, and so on for ever. The first mushrooms ought to appear within six weeks, and the length of time the bed will bear will depend on the steadiness of the temperature in the soil and the surrounding atmosphere, and the supply of sufficient moisture. The bed at 60° to 70° , and the atmosphere of the shed at 50° to 65° will be capital conditions for a profitable result.

Now for the recipe to make one bed serve the whole year round, which will be useful to those who have only one suitable spot for a mushroom bed, and in fact can be carried out with such certainty that it is worth the while of any person fond of mushrooms to put up a shed for the purpose, with brick wall at back high enough to allow of head room within, a double roof, that is to say, rough battens, and thatch all over, with a space of air between, and double sides consisting of rough boards and a thick outside lining of furze, or other rough warm stuff, to promote snugness within. You have but to make up the bed as directed, using grass sods in front instead of boards. Let it be, if possible, not less than nineteen feet long, or any multiple of 19, as 38, etc., etc. But any length will do that is convenient, as the plan to be described admits of modifications. As soon as the bed is made, go on accumulating droppings as before, keeping them always under cover. When the fruiting of the bed is on the wane, dig out the stuff in trenches across the bed one foot wide and three feet apart. Suppose the bed to be nineteen feet long, the operation will result in trenches as shown in this section of thirteen feet length of the bed, on the scale of a quarter of an inch to one foot.



The stuff taken out will be useful in the compost yard, for although the mushrooms extract the principal goodness from it, it will be found capital for fuchsias and flower-beds. If you have a dry, warm place in which to store it for use, lay it up in long ridges, and you will get a few more mushrooms out of it. As for the trenches, fill them with a mixture prepared in the same way as the first, they will communicate heat to the bed, and the bed will communicate spawn to them, and the bearing will continue. In the course of a month or so take out trenches again midway between the last and put in fresh mixture. In the course of another month take out trenches on either side of the last, and so go on removing and renewing and you will always have mushrooms.

There are many other ways of growing them. They may be grown on shelves in carefully saved droppings without loam, and the beds on the shelves need be only twelve to eighteen inches deep. As they do not want light, the shelves may range one above the other from floor to roof. They may be grown in pots and boxes, in cellars and cupboards, but I should think these make-shift methods very inconvenient, very liable to failure, and apt to make a mess where cleanliness would be more appropriate. But the rationale of the

growing is always the same, and it would be waste of space to multiply particulars. It must be borne in mind that a certain degree of moisture and warmth are essential, that light is not essential, but they may be grown in full daylight as well as in the dark, but I prefer the dark because an opaque roof is warmer than a glass one, and in winter we must husband warmth, or be at the expense of heating apparatus. As for mushroom houses I have nothing to say, it is a subject for master gardeners in wealthy establishments; we plain market folks manage to get some tolerably good produce by means of very rough and inexpensive appliances. If we had to grow mushrooms all winter in such houses as I have seen in noblemen's gardens, we could not send them to Covent Garden to be sold at the cheap rate at which the London public are supplied. It is not the costly tool that makes the clever workman, or the prettiest piebald or cream-coloured horse that wins the race.

T. B.

SEDUM FABARIUM.



THIS plant was figured and described in the *FLORAL WORLD* of November, 1863. I name it again in order to add to what has been said in its praise. It has been increased year after year since it was first introduced to public notice by Messrs. Carter and Co., and I have at the present time a very large stock of it. The plants are all in six-inch pots; they stand out all the winter, plunged in cocoa-nut fibre; some time in April or May they are parted, and the partings potted in light loamy soil (almost any soil will do for it), and they are again plunged. If the parting does not produce enough plants, a quantity of cuttings are put in pots, and kept in a frame till rooted, and are then potted separately in four-inch pots; they will not properly occupy six-inch pots the first season. About the first of September, the great flower-heads begin to show a little colour; they are then taken to the forecourt, and made use of to fill a bed, being plunged in cocoa-nut fibre, and they continue fresh and beautiful till the middle of October. During the wretched weather of the past month this plant has been invaluable. The cold, drenching rains ruined fuchsias and geraniums, and even the plunged gladioli did not keep their looks as long as they would have done with better weather. Had I not possessed a good stock of this sedum, I must have put up with a mass of dilapidated plants, with specks of colour here and there, for there was nothing else in the place fit for embellishment except this. Instead of dirty clumps and borders, however, my display has been fresh and bright; the great heads of pale pink flowers of *Sedum Fabarium* and its peculiar glaucous leaves having, under very trying circumstances, secured a continued triumph for the "plunging system"! For any other system it is, perhaps, scarcely so valuable. Yet it is not unreasonable to suppose that, in many places where the principal flower-beds

were the disgust of all beholders during the recent wretched weather, a lot of this sedum, either plunged or planted out, would have been acceptable, especially to those shut up much in the house, as many ladies are, and who become weary of watching a washed-out garden. Suppose the beds nearest the windows to be cleared of their occupants by the 10th of September, and the beds then filled with *Sedum Fabarium*, there would be a delightful change of scene, and the prolongation of the beauty of the garden in spite of the worst weather that could happen. Those of our readers who do not possess this sedum we strongly advise to obtain it. Should it not be wanted for pot-culture, plant it out in a sunny border, and leave it to take care of itself, and it will form a fine bush, and be admired by all who see it. S. H.

ON THE ACTION OF CHARCOAL ON VEGETATION.

BY EDWARD LUCAS.



IN a division of a low hothouse in the botanical garden at Munich, a bed was set apart for young tropical plants, but instead of being filled with tan, as is usually the case, it was filled with the powder of charcoal (a material which could be easily procured), the large pieces of charcoal having been previously separated by means of a sieve. The heat was conducted by means of a tube of white iron into a hollow space in this bed, and distributed a gentle warmth, sufficient to have caused tan to enter into a state of fermentation. The plants placed in this bed of charcoal quickly vegetated, and acquired a healthy appearance. Now, as always is the case in such beds, the roots of many of the plants penetrated through the holes in the bottom of the pots, and spread themselves out; but these plants evidently surpassed in vigour and general luxuriance plants grown in the common way, for example, in tan.

Several of them, of which I shall only specify the beautiful *Thunbergia alata*, and the genus *Pereskia*, threw quite astonishingly; the blossoms of the former were so rich that all who saw it affirmed they had never before seen such a specimen. It produced also a number of seeds without any artificial aid, while in most cases it is necessary to apply the pollen by the hand. The *Pereskia* grew so vigorously, that the *P. aculeata* produced shoots several ells in length, and the *P. grandifolia* acquired leaves of a foot in length. These facts, as well as the quick germination of the seeds which had been scattered spontaneously, and the abundant appearance of young *Filices*, naturally attracted my attention, and I was gradually led to a series of experiments, the results of which may not be uninteresting; for, besides being of practical use in the cultivation of most plants, they demonstrate also several facts of importance to physiology.

The first experiment which naturally suggested itself was to mix a certain proportion of charcoal with the earth in which different plants grew, and to increase its quantity according as the advantage of the method was perceived. An addition of two-thirds of charcoal, for example, to vegetable mould, appeared to answer excellently for the *Gesneria* and *Gloxinia*, and also for the tropical *Aroidæ* with tuberous roots. The first two soon excited the attention of connoisseurs by the great beauty of all their parts and their general appearance. They surpassed very quickly those cultivated in the common way, both in the thickness of their stems and dark colour of their leaves; their blossoms were beautiful, and their vegetation lasted much longer than usual; so much so, that in the middle of November, when other plants of the same kind were dead, these were quite fresh and partly in bloom. *Aroidæ* took root very rapidly, and their leaves surpassed much in size the leaves of those not so treated. The species which are reared as ornamental trees on account of the beautiful colouring of their leaves—I mean such as the *Caladium*

bicolor, *Pictetia*, *Pœcile*, etc., were particularly remarked for the liveliness of their tints; and it happened here also that the period of their vegetation was unusually long.

A cactus, planted in a mixture of charcoal and earth, thrived progressively, and attained double its size in the space of a few weeks. The use of the charcoal was very advantageous with several of the *Bromeliaceæ* and *Silenaceæ*, with the *Citrus* and *Begonia* also, and even with the *Palmeæ*. The same advantage was found in the case of almost all those plants for which sand is used in order to keep the earth porous; when charcoal was mixed with the soil instead of sand, the vegetation was always rendered stronger and more vigorous.

At the same time that these experiments were performed with mixtures of charcoal and different soils, the charcoal was also used free from any addition, and in this case the best results were obtained. Cuts of plants from different genera took root in it well and quickly. I mention only the *Euphorbia fastuosa* and *fulgens*, which took root in ten days; *Pandanus utilis*, in three weeks; *P. amaryllifolius*, *Chamædorea elatior*, in four weeks; *Piper nigrum*, *Begonia*, *Ficus*, *Cacropia*, *Chicocca*, *Buddleja*, *Hatrea*, *Phyllanthus*, *Capparis*, *Laurus*, *Stiftia*, *Jacquinia*, *Mimosa*, *Cactus*, in from eight to ten days; and several others, amounting to forty species, including *Ilex*, and many others. Leaves and pieces of leaves, and even pedicels or petioles, took root and in part budded in pure charcoal. Amongst others we may mention the foliola of several of the *Cycadaceæ* as having taken root, as also did parts of the leaves of the *Begonia Selsairice*, and *Jacaranda Brasilienæ*; leaves of *Euphorbia fastuosa*, *Oxalis Barrelieri*, *Ficus*, *Cyclamen*, *Polyanthus*, *Mesembryanthemum*; also, pieces of a leaf of the *Agave Americana*, tufts of *Pinus*, etc., and all without the aid of a previously-formed bud.

Pure charcoal acts excellently as a means of curing unhealthy plants. A *Doryanthes excelsa*, for example, which had been drooping for three years, was rendered completely healthy in a very short time by this means. An orange-tree, which had the very common disease in which the leaves become yellow, acquired within four weeks its healthy green colour, when the upper surface of the earth was removed from the pot in which it was contained, and a ring of charcoal of an inch in thickness strewed in its place around the periphery of the pot. The same was the case with the *Gardenia*.

I should be led too far, were I to state all the results of the experiments which I have made with charcoal. The object of this paper is merely to show the general effect exercised by this substance on vegetation; but the reader who takes particular interest in this subject, will find more extensive observations in the *Allgemeine Deutsche Gartenzeitung*, of Otto and Dietrich, in Berlin.

The charcoal employed in these experiments was the dust-like powder of charcoal from firs and pines, such as is used in the forges of the blacksmiths, and may be easily procured in any quantity. It was found to have most effect when allowed to lie during the winter exposed to the action of the air. In order to ascertain the effects of different kinds of charcoal, experiments were made upon that obtained from the hard woods and peat, and also upon animal charcoal, although I foresaw the probability that none of them would answer so well as that of pine wood, both on account of its porosity and the ease with which it is decomposed. It is superfluous to remark that in treating plants herein described, they must be plentifully supplied with water, since the air, having such free access, penetrates and dries the roots, so that unless this precaution is taken, the failure of all such experiments is unavoidable.

The action of charcoal consists primarily in its preserving the parts of the plants with which it is in contact, whether they be roots, branches, leaves, or pieces of leaves, unchanged in their vital power for a long space of time, so that the plant obtains time to develop the organs which are necessary for its further support and propagation. There can scarcely be a doubt, also, that the charcoal undergoes decomposition; for after being used five to six years, it becomes a coaly earth, and if this is the case, it must yield carbon, or carbonic oxide abundantly to the plants growing in it, and thus afford the principal substance necessary for the nutrition of vegetables. In what other manner, indeed, could we explain the deep green colour and great luxuriance of the leaves and every part of the plants, which can be obtained in no other kind of soil, according to the opinion of men well qualified to judge? It exercises, likewise, a favourable influence, by decomposing and absorbing

the matters excreted by the roots, so as to keep the soil free from the putrefying substances which are often the cause of the death of the spongiolæ. Its porosity, as well as the power which it possesses of absorbing water with rapidity, and after the saturation of allowing all other water to sink through it, are causes also of its favourable effects. These experiments show what a close affinity the component parts of charcoal have to all plants, for every experiment was crowned with success although plants belonging to a great many different families were subjected to trial.

SHADOWS.

ALL things earthly vanish and pass—
 Vanish as hues o' the morn ;
 All pass away as the glimmer of day,
 While others as fleet are born.
 Hush, hush ! thou too must fall
 Under the coffin shroud ;
 Stay, stay ! thy funeral pall
 Is imaged in yonder cloud !
 All things vanish and pass away,
 Like shadows, that flit at the close of day.

The flowers that bloom in the azure deeps—
 The golden stars—must fall ;
 There is ever a time they cease to climb
 O'er the steeps of heaven's blue wall.
 Hush, hush ! one now goes down
 Into the soundless sea ;
 Fleet, fleet, as that star hath flown
 Are the days of thy destiny !
 Like autumn's shadow, or evening's sigh,
 Each star of darkness but gleams to die.

The blossoms that shine in the fields of spring,
 Like jewels sown in the grass,
 Have a fate like stars which their glory fling,
 And bloom but to wither and pass.
 Look, look ! as the leaves grow white,
 And buds but wither and fade,
 The flowers which glimmered in spring so bright
 Have perished in autumn's shade.
 As the voice of the sick when they sink to die,
 So feeble and faint do the blossoms lie.

Look down on the infant, whose laughing eyes
 Seem mirrors of heavenly bliss ;
 Look down at him now, as he sickens and dies
 'Neath the breath of a parent's kiss !
 Hush, hush ! we are hastening fast
 O'er ripples of time's dark wave ;
 And, ere we arrive where our hopes are cast,
 We are deep in the silent grave !
 So pause, and consider, nor tread so fast ;
 The moment which follows may be—your last !

NEW PLANTS.



HODODENDRON FORTUNEI, *Mr. Fortune's Rhododendron* (*Bot. Mag.*, t. 5596).—*Ericææ*. A splendid species, discovered by Fortune in the Chinese province of Che Kiang, on mountains 3000 feet high. It is a stout shrub, leaves five to seven inches long, bright green above, glaucous below, head of eight to ten loosely clustered, rather pendulous flowers, which are sub-campanulate, three to three and a-half inches in diameter, fragrant, of a fine pale rose colour. It is closely allied to *R. Griffithianum*, and its variety, *Aucklandii*, but excels these in the lovely rose colour of the corolla.

ILEX LATIFOLIA, *Broad-leaved Japanese Holly* (*Bot. Mag.*, t. 5597).—*Ilicineæ*. A noble Japanese holly, which has stood without protection, trained against a wall, for many years quite uninjured in the Royal Gardens, Kew. In the open air it appears not to flower, but it flowers abundantly in the temperate house. In the west of England it would probably thrive in open plantations. It has paler green leaves than the common holly, the flowers are produced in round heads of a pale yellow-green colour, and the berries are vermilion red.

HUNTLEYA CERINA, *Waxy Huntleya* (*Bot. Mag.*, t. 5598).—A beautiful orchid has been several times figured and described thus, but has been very scarce till lately. It was originally discovered by Warszewicz, in Veragua. It is a bulbless epiphyte, producing tufts of four or five cuneate-oblong leaves, which are a foot long. The flowers are produced at the base of the leaves, sepals and petals nearly equal, an inch and a-half long, nearly round, straw colour, lip yellow, puckered, bearing at the foot of its disk a thick ruff composed of numerous folds.

NIEREMBERGIA VEITCHII, *Mr. Veitch's Nierembergia* (*Bot. Mag.*, t. 5599).—*Solanææ*. A lovely little plant, imported from South America. It is a prostrate, glabrous, branched herb, with leaves an inch long, and neat campanulate lilac flowers.

KÆMPFERIA ROSCÆANA, *Mr. Roscoe's Kæmpferia* (*Bot. Mag.*, t. 5600).—*Scitamineæ*. This exquisitely beautiful plant, a native of Burmah, has been long in cultivation, but has only of late years enjoyed the admiration it deserves on account of its finely-painted foliage. It produces two orbicular leaves which lie flat to the right hand and to the left, and the flowers are produced one at a time between them. The leaves are blackish olive green, with elegant crescentic markings of pale greyish green, and the flowers are white.

THE GARDEN GUIDE FOR OCTOBER.

FLOWERS OF THE MONTH.—*Greenhouse*: *Statice Holfordii*, *Bilbergia purpurea*, *Arctotis decumbens*, *Blandfordia intermedia*, *Brugmansia suaveolens*, *Drimia altissima*, *Dumasia pubescens*, *Pleroma elegans*, *Tacsonia molissima*, *Witsenia corymbosa*, *Chirona linoides*, *Disporum fulvum*, *Passiflora Colvillii*, *P. racemosa*, *Nerine sarniense*, *Malva campanuloides*, *Salvia splendens*, *Solanum Tweedii*, *Thea Bohea*, *Othonna Virginea*, *Adesmia viscosa*, *Dyckia altissima*, *Xanthoxylon piperitum*, *Stenochilus viscosus*.—*Ericas*: *Aurea*, *Pulchella*, *Acuminata*, *Sulphurea*, *Bowicana*, *Pinea discolor*, *Pinea favoides*, *Pinea pulchella*, *Banksia purpurea*, *Pedunculata*, *Retorta*, *Declifordii*, *Halicababa*, *Tenuiflora alba*, *Comosa rubra*, *Hartnelli*, *Droseroides*, *Rupestris*, *Ovata*, *Pyramidalis*, *Vestita alba*, *Vestita coccinea*, *Hispidula*, *Assurgens*, *Cupressina*, *Eriocephala*, *Mundula major*, *Nivalis*, *Minutæflora*, *Leptocarpa*, *Cerinthoides*, *Glomiflora*, *Lutea*.—*Garden*: *Aster fulvis*, *A. foliolosus*, *A. laevis*, *A. eminens*, *A. dumosus*, *A. pulcherrimus*, *A. Novæ Angliæ*, *A. amplexicaulis*, *Vernonia altissima*, *V. præalta*, *V. scaberrima*, *Teucrium lucidum*, *T. hyrcanicum*, *Salvia virgata*, *S. Verbenacea*, *Pyrethrum Chinense*, *Astragalus chlorostachys*, *Campanula stricta*, *Aconitum Chinense*, *Actinomeris procera*, *Oxytropis brevirostris*, *Hieracium maculatum*, *H. heterophyllum*, *Funkia undulata*, *Oxybaphus chilensis*, *Fumaria leucantha*, *Coreopsis crassifolia*, *C. fernæfolia*, *C. incisa*, *Erodium serotinum*.—*Orchids*: *Papihina cristata*, *Bolbophyllum Careyænum*, *Miltonia Morellii*, *M. Morellii atrorubens*, *M. Regnelii*, *Angræcum bilobum*,

Dendrobium discolor, *D. taurinum*, *D. veratrifolium*, *Huntleya violacea*, *Lælia Perrinii*, *Vanda gigantea*, *Cattleya guttata*, *C. guttata Leopoldii*, *C. labiata*, *C. labiata atropurpurea*, *Pleione maculata*, *P. Wallichiana*, *P. lagenaria*, *Cypripedium venustum*, *Zygopetalum Mackayi*, *Cælogyne Cummingii*, *Oncidium ornithorynchum*, *O. roseum*, *Mormodes atropurpureum*, *Burlingtonia venusta*, *Lycaste plana*, *Cypripedium purpuratum*, *C. Schlimii*, *Dendrobium album*, *Lælia Maryanii*.

GARDEN WORK.

Kitchen Garden.—The dreadfully wet state of the ground will prevent the prosecution of earth work and planting for some time, but the best advantage must be taken of fine weather to mend and extend drains where needed, also to mend walks, and to clean plots of ground where the weeds have got ahead. Potatoes are generally in a wretched plight, owing to the frequent cold rains since the middle of August. We have grown near upon 150 varieties in our trial ground this season, and the yield has been enormous and remarkable for size, potatoes six to nine inches long being plentiful. But we are no gainers, for before a tenth part of the field was ripe the murrain broke out, and we have not harvested a third part of the whole. All four first earlies, such as Ashleaf, Sutton's Racehorse, etc., were ripe in the middle of July, and were a fine crop, the quality good and not a diseased tuber amongst them. We shall be able to show 100 sorts at the Guildhall show on the 13th to 15th of next month, and we might have hoped to do more, but that some of the sorts have been entirely swept away by disease. Where celery has not yet been moulded up, do it at once. Lettuce and cabbage may be planted out for winter. Brocolis to be heeled over with their heads to the north. Remove the stems of asparagus, draw the weeds off the surface and dress the beds with manure. Plant rhubarb if required, choose a moist position and use plenty of manure. Take up roots of all kinds and store: parsnips may remain in the ground if convenient and be taken up as wanted.

Fruit Garden.—Bush fruits may be planted, but it is better to wait till the beginning of next month. This however is the best time to put in canes for increase of stock. There is not much to be done in the fruit garden now, but plots to be planted may be made ready. Wall trees are gross and sappy, owing to the heavy rains. If at all crowded, thin out the shoots at once and nail in the bearing wood for next year; this will promote the ripening of the season's growth.

Flower Garden.—Take up any tender plants that are to be kept through the winter, and house whatever is likely to suffer by heavy rain or frost. Look after chrysanthemums and let all staking be finished at once, or when they bloom they will not look well. Proceed with planting and potting bulbs of all kinds. Hardy evergreens and hardy herbaceous plants may be planted better now than at any other time in the whole year.

Greenhouse and Stove.—Not a scrap of shading should remain up anywhere. Use fire-heat if the weather is wet or cold, or the plants now in flower will soon have a wretched appearance. While we write the rain is pouring down and the temperature is like winter, and we have the furnace burning and the houses made comfortable to keep some hundreds of geraniums in bloom. Stage a few of the forwardest chrysanthemums to get an early bloom if you are likely to be short of flowers; otherwise retard them, as so long as they are not hurt by frost they may be kept in reserve, and will flower late and be extra useful. Vines started now to have a temperature not higher than 55°, soon after they begin to move let it rise to 60°. Outside borders should be covered to throw off the rain.

NEWS OF THE MONTH.

UNITED HORTICULTURAL SOCIETY.—This society has again had the good fortune to secure, by the kindness of the Corporation, the Guildhall of the city of London for a flower and fruit show, to be held on the 13th, 14th, and 15th of November next. The magnificent spectacle which the last show presented in the

same place produced a great impression on the public mind, both in favour of horticultural pursuits, and of sympathy with this society, which devotes the profits of its exhibitions to the benevolent fund recently instituted in behalf of aged and afflicted gardeners.

At the meeting held on the 10th, the president, Wm. Marshall, Esq., in the chair, there was a particularly interesting exhibition of plants and flowers. The president called attention to a beautiful novelty, *Lælia elegans* v. *Marshallii*. The sepals are equidistant, and narrower than the petals, and all alike coloured a rich rosy-purple. The lip is boldly produced, the colour deep velvety purple, white at the base. Mr. Howard, gardener to J. Brand, Esq., Balham, brought a splendid specimen of *Saccolabium Blumei* in a basket; it had two finely developed spikes, quite two feet in length, and was in every respect a proof of skilful cultivation. Mr. Laing, of Streatham, brought a plant of *Miltonia spectabilis* smothered with flowers, which were remarkably well coloured. Mr. Cannell, of Woolwich, exhibited three new and fine *Pettnias*. Marquis de St. Innocent is a fine double purple of great substance and delicious perfume. Madame H. Aubenne is double, of great size, and very distinct in make and character, the colours white and crimson. *La Coquette* is single, white with rosy bars, the colour forming a star on a white ground. Mr. Cannell also presented *Tropæolum compactum* Scarlet Gem, on which Messrs. Hibberd and Kirtland reported, having seen it growing before it left the raiser's hands, that it was of compact, neat, dwarf habit, forming a low bush, and produced in great abundance scarlet flowers of the finest quality. A first-class certificate was awarded it. Mr. Baker brought *Apios tuberosa*, a pretty sweet-scented papilionaceous plant, the flowers of which are dull purple, and produced in compact thyrses. Mr. Wilson, gardener to W. Marshall, Esq., sent a prettily variegated plant of common celery; this is of no value, though interesting as a curiosity. Mr. Hibberd submitted a seedling plant of *Adiantum Farleyense*, which was stated to be a fair sample of a large batch of seedlings. The fronds were about six inches long, and had the character of a rich form of *A. capillus veneris*, the peculiar characters of *Farleyense* making their first appearance in the more mature fronds, which were already seeding. From the same, examples of a batch of *Tuberoses* just then coming into bloom, and which were brought before the meeting to exemplify the simple manner in which this beautiful plant might be grown. Mr. Hibberd stated that he had departed from the ordinary routine of potting and placing on bottom-heat in January, because that resulted in the production of flowers in June, when they were much less needed than from the present time to Christmas, which would be the range of the flowering season of the plants treated as these were. The bulbs were potted in the early part of April, and were kept almost dry till the middle of May, when there were indications at the crowns of the bulbs that growth had commenced. They were then supplied with water occasionally, but were still kept almost dry, and were put near the glass. By the middle of June they were growing freely, and were allowed plenty of water, and had thrown up fine spikes, the forwardest of which were then just showing the white of their yet unexpanded flowers.

CRYSTAL PALACE AUTUMN SHOW, SEPT. 16.—This was a very entertaining and effective exhibition, occupying the greater part of both ends of the nave—that is to say, right and left of the Handel orchestra. As the filling of one end of the nave makes a good display—as, for example, on the occasion of the Rose Show—the extent of the present exhibition is some criterion of its merit. As for the flowers generally, they were good, German asters were excellent, though the French kinds were scarcely up to the mark. Dahlias, asters, and roses occupied the whole length of the cool end of the nave, and fruits and miscellanies the tropical end. Between the two was a fine display of gladioli. The fruit show was not up to the mark; but there were some noble subjects, as, for example, a set of pot vines from Messrs. Lane and Son, done in their very best style; some splendid bunches of grapes from various exhibitors; a collection of twenty varieties of nuts from Mr. Webb, of Calcot, Reading, and a line of melons extending the whole length of the table, some forty or fifty of them. Mr. Keynes took the lead in the class for forty-eight show dahlias with a very fine lot of flowers, well-grown and cleverly displayed. The dark green of Mr. Keynes' stands tends in a very material degree to bring out the beauty of his flowers. Mr. Walker, of Thane, was second; Mr. Kimberley, of Coventry, third. In the class for twenty-four, Mr. Keynes was again first; Mr.

Draycott, of Humberstone, near Leicester, second ; Mr. Legge, third ; Mr. Walker, fourth.

Mr. Keynes's First Prize, Forty-eight Dahlias.—Golden Admiration, King of Sweden, Matilda, Queen of Primroses, Delicata, Edward Sparey, Baron Taunton, Lord Shaftesbury, Chairman, James Backhouse, Miss Henshaw, Flossy Gill, George White, Leah, Paradise Williams, Mrs. Wyndham, John Wyatt, Andrew Dodds, Umpire, Charlotte Dorling, Annie Austin, Disraeli, Anna Keynes, British Triumph, Lady of the Lake, Freemason, Lady Mary Wylde, George Wheeler, Miss Herbert, Bob Ridley, Lady Palmerston, Criterion, Stella Colas, Hugh Miller, Ellen Potter, Lilac Perfection, Lady G. Herbert, Lord Derby, Princess of Norfolk, Hero, Lilac Queen, Sam Bartlett, Peri, Earl of Pembroke, Fanny Purchase, Vice-Chairman, Golden Gem, Jenny Austin.

The amateur class were very well sustained. Generally speaking, the private growers were strong in both flowers and sorts, showing superb examples of the very best in cultivation, and representing many widely-separated districts. Mr. C. J. Perry, of Castle Bromwich, took the lead with a glorious twenty-four ; Mr. Thorneycroft, of Floore-by-Weedon, second ; Mr. Hopkins, of Brentford, third ; Mr. Hedge, of Colchester, fourth. In the twelves, Messrs. Thorneycroft, Glasscock, Lukins, Hopkins, and Hedge, were the principal exhibitors.

Mr. Perry's First Twenty-four Dahlias.—Criterion, Charlotte Dorling, Pauline, George Brown, British Triumph, Juno, Lord Derby, Alexandra, Hugh Miller, Miss Henshaw, Messenger, Lady G. Herbert, Leah, Delicata, Donald Beaton, Bob Ridley, seedling, pinky-blush, a beautiful flower ; Model, Master of Arts, Andrew Dodds, Anna Keynes, Chairman, Arthur Phidias.

First Twelve.—Miss Henshaw, British Triumph, Matilda Keynes, International, Willie Austin, Juno, Seedling, gold yellow, a nice flower ; Lord Derby, Model, Lord Palmerston, Volunteer, Fanny Purchase : the last was the best yellow flower in the whole of the show.

Fancies were not so good as selfs, though the leading collections were fresh and bright. Mr. Perry first in the amateur class for twelve. Mr. Keynes first in the trade class for twelve.

Mr. Keynes's First Twelve Fancies.—Butterfly, John Salter, Ebor, President Lincoln, Lord Warden, Messenger, Lightning, Octoroon, Remarkable, Chang, Formidable, Regularity.

Mr. Perry's First Twelve Fancies.—Artemus Ward, rich lively purple stripes and tips ; Regularity, Trompie de Roubaix, Harlequin, Garibaldi, seedling, buff and red, second rate, Queen of Sports, Pauline, Octoroon, John Bunn, Sam Bartlett, Queen Mab.

New Dahlias were numerous, but very few of them good, and only one or two which could be called startling flowers, even by the aid of a stretch of fancy. The best were the following :—From Mr. Keynes : Gazelle, lurid red, large, peculiar in appearance, and likely to be useful, but not first-rate. Harriett Tetterell, large, well made, a fine flower ; colour rich rosy-purple, the base rosy-lilac ; first-rate. From Mr. Bragg : Warrior, a good showy scarlet, the colour bright. Fair Lady, curious creamy primrose, edged lilac, clean and promising. From Mr. C. J. Perry : Cheerful, a very showy tipped flower, deep rich red, the base creamy white. Snowball, a beautiful white. Mrs. Turner, superb form, and one of the best seedlings shown, colour clear canary-yellow. From Mr. Wheeler, of Warminster : Jubilee (1865), orange buff, with red orange tips, useful though second-rate. Venus, a confused unfinished flower, of a most charming shade of pinky-flesh. Bijou, soft rose-pink, with whitish shade, very nearly first-rate, and certainly very beautiful, and a novelty in colour. Flambeau, in the way of Brunette, yellow base, rich crimson, purplish edge, a telling flower, likely to become a favourite. Starlight, small, but neat, yellow, with rosy purple tips, colouring regular. This appears only to want growing to be first-rate. From Mr. Pope : Gem, a fine flower, blush ground, crimson edge ; if constant, good. From Mr. Collier, Bethnal Green : Salmon King, neat and well made, salmon, with purplish centre. From Mr. R. Petfield, Diddington, Hunts : Mrs. Thornhill, medium size, nice form, white, with yellowish shade towards the centre, sharply-edged rosy purple, quite a picotee edge. From Mr. Legge, Edmonton : Annie Welsh, small, soft pinky flesh, and white. From Mr. Rawlings, of Romford : Prince, purplish-rose. John Sladden, a fine dark maroon crimson, rather low centre. Fair Maiden, varying from delicate creamy white to delicate

blush ; a very pretty flower. From Mr. Eckford, Coleshill, Berksbire : Lady Jane Ellice, fine form, good centre, blush, nicely-edged rose ; very promising. From Mr. Keynes : Paradise Williams, a fine self, crimson, with vermilion shade, noble form. Vice-President, a large, bold, handsome, though rather coarse flower, buff, with occasional red stripes. Princess of Wales, fine form, large, delicate rosy-blush, shading to primrose-white, with light rose-tips in the centre ; a beautiful flower.

Hollyhocks were only shown as cut flowers, and they were all good. It is to be regretted that the showing of spikes is on the decline, for they are not only effective, but they afford far better means of comparing the varieties as to their intrinsic merits than cut flowers do. The Rev. E. Hawke, of Willingham, Gainsborough, and Mr. Porter, of Copt Hall, were the leading exhibitors, the first-named having two collections in splendid condition. The following amongst them were first-rate :—Lord Lyon, Rev. E. Hawke, Beauty of Waltham, Countess of Craven, Prince Christian, Earl Breadalbane, Hercules, Autumn Queen, Mrs. Elliott, J. B. Ullett, Chairman, G. Young, Crimson Seedling, Acme, Prince, George Keith, Invincible, Lilac Perfection, Governor-General, William Dean, Willingham Defiance.

Roses were a grand feature of this show, and Marechal Niel was a grand feature of the Roses, for Mr. Keynes, of Salisbury, put up thirty-six blooms, forming a lovely bed of golden flowers, and securing for this splendid variety another vote of public confidence and admiration. Messrs. Paul and Son put up a batch of twelve Marechal Niels, also boxfuls of Lord Macaulay, Charles Lefebvre, and Madame Victor Verdier, a generous and very telling way of securing attention to the merits of particular varieties.

Grapes.—Mr. Meredith took the lead for three bunches of black grapes with Black Hamburgs. These were handsome bunches, but in an unfinished state. In fact, the three shown by Mr. Osborn, of Finchley, and which took second place, were considerably better in colour and finish, though they were less handsome as bunches. Mr. Devenish, of Rodwell, presented three bunches of Muscat Hamburg on the rod, and they were fine indeed, and evidently the produce of a young vine. They were so close together on the rod as to make a sort of fringe of grapes two feet in length ; the weight of the three bunches was 10 lb. 10 oz. Mr. Norris, gardener to A. Bosanquet, Esq., Southgate, had the best basket of 12 lb. ; second, Mr. Osborn ; equal third, Mr. Toomer, gardener to J. Perrett, Esq., Herne Hill, and Mr. Frost, Maidstone. Mr. Hollingsworth, of Maidstone, put up three splendid bunches of Lady Downes ; and Mr. E. Morris, of Tring, three bunches of the same. Messrs. Lane and Son, Berkhamstead, put up three superb bunches of Black Prince. Mr. Geirs, gardener to F. Flight, Esq., Norwood, showed as Black Hamburg something very different to the fine grape which properly bears that name. The best Muscats came from Mr. Hollingsworth, whose Canon Hall was of large size and perfect in colour. Mr. Irving, gardener to the Duke of Hamilton, showed Buckland Sweetwater, well done ; the same exhibitor presented Black Alicante ripened without fire-heat. The pot vines from Messrs. Lane were grand examples ; they comprised Buckland Sweetwater, Esperione, Foster's Seedling, and Black Prince, the last two being particularly fine, the bunches numerous, handsome, and perfect in colour. Mr. Toomer had a splendid pot of Black Hamburg.

Various Fruits.—There were some finely-coloured peaches, but very few of more than average size. Messrs. Thornercroft, Crane, and Hazell were the principal exhibitors. The varieties were the same as usual. Nectarines from Messrs. King, Sutherland, and Dawson were excellent, and amongst them Rivers's Orange and Victoria were conspicuous for their beauty. Figs from Mr. Dennis and Mr. Samuel were fine. Brown Turkey, Brunswick, and White Genoa were admirably shown. Plums from Mr. Webb, of Calcot Gardens, Reading, were excellent ; so also Mr. Bailey, Mr. Shoebridge, and Mr. Gilbert showed fine samples, well established sorts prevailing. There were good dishes of cherries. Mr. Marcham had beautiful samples of Morello and Kentish ; Mr. Bailey, Morello and Bigarreau ; Mr. Dawson, Florence and Belle Magnifique ; Mr. Sage, Florence and Morello.

TO CORRESPONDENTS.

AUTUMN-PLANTED POTATOES.—*M. A.*—You may plant *Mona's Pride*, *Milky White*, or any other potatoes, in autumn with the utmost safety. The best day in the whole year to plant potatoes is the same day as the ripe tubers are taken up. If on that day the middling-sized sets were selected, and at once planted for next year's crop, the best possible results would ensue. Generally speaking, this cannot be done, and the next best thing is to plant as soon as possible after the harvesting of the crop. Autumn-planted potatoes must be covered with seven inches of soil to be safe from frost, and at that depth no frost will hurt them. The two sorts named may be obtained of Messrs. Sutton and Sons, Reading.

CALCEOLARIAS DYING.—*E. C. H.*—We do not undertake to account for the death of your plants, but we have no doubt that the dryness of your soil, and the poverty of it combined, are the causes of your loss. In all parts of the country calceolarias have perished *en masse*; indeed, in the course of our visits to hundreds of gardens this season, we have seen only two samples of calceolarias doing well; one was in the garden of J. B. Saunders, Esq., Taunton, the other in the garden of Mr. Benington, Broxbourne. The remedy for this has been plainly pointed out in the *FLORAL WORLD* (see pages 256 and 278 of this year's issue). The best covering to exclude frost and rain from a shed is a framework of wood, either rough and portable, or fixed as a roof, and over which is laid a tarred sailcloth, or a rick cloth, such as is used by farmers. Tiffany is of very little use for such a purpose. As you want to flower chrysanthemums in the shed, probably the best mode of procedure will be to have a roller-blind made of stout canvas. The cost of a greenhouse we cannot give, but you may reckon on getting something substantial at 30s. to 40s. per foot run. Generally speaking, the village carpenter is the best person to call in, but if you want it sent ready to put up, and the best make possible, we recommend Sir Joseph Paxton's make, which you can obtain of Messrs. Hereman and Morton, 7, Pall Mall East, London.

SMALL FERNERY.—*M. H.*—You had better put glass in the side of the house next the hollies and yews, for though that is a dark side, the glass will admit *some* light, and perhaps enough to prevent the ferns growing one-sided with all their faces to the east. You had best use clear glass on the dark side, to get all the light possible there, but rough plate will do on the east side. No need of a steep pitch to the roof; the more it approaches a flat, the better for ferns and orchids. You must ventilate, and the best way will be to have a ventilator over the door at each end, to let out heated air in summer, and leave out two or three bricks in the wall in the centre of the house; that is, midway between north and south ends. A draught is not desirable, but a circulation of air is. As to heating, we can only tell the old story, that there is nothing so good as hot water, but a large charcoal stove (made by Swan Nash, Newgate Street, London) will keep out frost.

PROFITABLE FLOWER SEEDS.—*C.* asks, "What would be the most profitable seeds to sow on a few acres of strong loam? I refer to annual garden flowers, and when the best time for doing so." This is a perplexing question, because if *C.* wishes to embark in the seed trade, it is useless to seek advice and guidance through these pages, for the simple reason, that as we do not understand the seed trade, we cannot initiate any of our readers. If the object is to beautify the "few acres," then we leave *C.* to select according to taste. The annual which is most largely grown at seed farms is the fragrant *mignonette*. At Messrs. Carter and Co.'s seed farm at Dedham, there were ten acres of *mignonette* grown this season. Perhaps next in importance to *mignonette* is the *Minor Tropæolum*, many acres of which are grown at seed farms. But this is all beside the mark; a thing to be profitable must be convertible into money, and you might fail to find a market for your products, and, looking at the case from several points of view, and having no trade experiences, we think it best to say that we cannot advise you what to grow for purposes of profit.

GLOXINIAS.—*Bronilore.*—Your gloxinias have been too cold, and perhaps too wet, and the consequence is abortive flower buds.

AMERICAN SHRUBS.—*H. L.*—This is certainly *the best* time to transplant rhododendrons and azaleas. If the turf is tough and rich in fibre, and the soil in it

more inclining to sand than to clay, it will answer admirably, and you need not wait for it to become completely rotten. The shrubs in the piece intended for rhododendrons may all be lifted now with perfect safety.

EVERGREENS FOR WINDY SITUATION.—*H. L.*—One of the best you can have for an exposed situation is the common spruce, *Abies excelsa*. To this add any or all of the following:—*Abies Douglassi*, *Cupressus Lawsoni*, *Juniperus Virginiana*, *Juniperus communis*, Common Yew, and Irish Yew; the dwarf yew, *Taxus adpressa*; *Thuopsis borealis*, and *Thuia occidentalis*. Many other fine conifers are suitable, but the foregoing are sure to succeed. Among miscellaneous shrubs, the best are common holly, *Berberis aquifolium*, common box, and round-leaved box; oval-leaved privet, *Ligustrum ovalifolium*, evergreen oak, *Quercus ilex*, double flowering furze, and ivy of many kinds. The beautiful Lauristinus grows freely in many dusty and gusty seaside gardens, but it does not flower freely unless in a warm climate.

PATCHY LAWN.—*H. L.*—Your best plan, having sown seed and failed, is to dig over the patchy places at once, and lay down turf. If done quickly, the new turf will get hold of the soil before frost sets in. At the end of August would have been a better time for the work. If you cannot do it at once, let it remain as it is till February, and then turf the bare places.

ROSES ON SKIRTS OF A LAWN.—*H. L.*—You may plant roses now with the best advantage. Probably it would be well to have the ground deeply dug and liberally manured first. The principal season for planting roses is November. Do not plant pillar roses under the drip of trees; dwarfs on their own roots would have a much better chance in such a position. A few evergreens, such as berberis, yew, holly, and arbor vita; with a few deciduous shrubs, such as Weigelia, *Rhus cotinus*, red-flowering currant, Persian lilac, and *Lonicera fragrantissima*, would make a suitable background to the roses, to shut out the view of the wall and road.

HERBACEOUS PLANTS.—*M. N.*—If Delphiniums and Phloxes, which bloom well in almost any soil and situation, do not bloom in your garden, there must be something very bad in the soil, the climate, or the management. A good deep and well-manured loam is the best for such things, and an open sunny position is also desirable. Let the ground be deeply dug and liberally manured, and try again. The white leaves on your camellias probably result from poverty of soil. The best climbers for your arches are Boursault roses, Hybrid rose Red Rover, Clematis vitalba, and common honeysuckle. It will be advisable to obtain two plants of each kind determined on, and plant them in pairs, as it has a very bad effect to put two sorts of plants to one arch.

CHIMONANTHUS FRAGRANS.—*M. F.*—This delightfully fragrant and otherwise interesting shrub, cannot be easily propagated by cuttings. But it may be increased by layers or seeds. In the month of September is the best time to make layers, but it is not too late to do so now. Draw down a few branches, and cut a tongue in them, and fix them by means of strong pegs, so that the tongue will be a few inches below the surface, closing them in firmly with soil to finish the operation. Seed sown in March, in a gentle hotbed, will soon germinate, and thus any number of plants may be obtained, and to grow them to flowering size is but a question of time. It is rather tender, and when planted out of doors requires a wall, but the proper place for it is in a cool conservatory.

CARTER'S BOOK ON BEDDING.—*J. F.*—Messrs. Carter's book does not teach how to cut geometric figures, or how to do anything with them but plant them. If you want the book you must apply to Messrs. Carter.

PINKS, CARNATIONS, AND PICOTEEES.—*G. G.*—The garden pink is *Dianthus hortensis* of the botanists, the carnation is *Dianthus caryophyllus*, the picotee is a variety of the carnation. The pink is heavily coloured in the middle of the petals, and the colouring is called the "lacing." Red, crimson, and purple are the prevailing colours. The carnation is marked in flakes or stripes from the base to the margin of the petals. The prevailing colours are rose, carmine, cerise, crimson, and flesh. The picotee is delicately edged with colour, usually in sharp, thin, marginal lines, and the prevailing colours are red, crimson, and rose. They are usually distinguished as "light edged" and "heavy edged," according to the breadth of the marginal lines.

THE FLORAL WORLD

AND

GARDEN GUIDE.

NOVEMBER, 1866.

THE SEASON, 1866.



THE leaves are falling, the sky is overcast, and as the days shorten, we gladly turn from the chilly air and the denuded woodlands to the cheerful coal fire that in the season of the suspension of plant life, keeps us in remembrance of our indebtedness to the vegetable kingdom. After a succession of fine hot seasons we have once more experienced the sad effects of long-continued rains, and a temperature far below the average needful for a perfect maturation of the fruits of the earth. The year 1866, so far as it has hitherto proceeded towards its completion, has not been pre-eminently a bad year, but it has been far from what we regard as good in the amount and character of its productions, and in its behaviour towards us in regard to the enjoyment of out-door life. In the season when fruit-trees were in bloom, there were long-continued rains, and a low temperature, and the pollen was so generally destroyed that the fruit crop of the season is far below the most ordinary averages. This has been the case with trees under glass as much as with trees in open quarters, and some part of the fruit failure may doubtless be attributed to the excessive wetness of the later part of the winter, when through the prevalence of a rather high temperature, the trees were for a long time kept in a half growing condition, most unfavourable for their future progress. But the weather was decidedly bad in the flowering season of fruit-trees; and doubtless had their condition then been of the best, the result would have been but little different to that which is now the subject of almost universal regret. The cereal crops were not in the best possible condition at the period when they first began to show signs of ripening. Yet had we been favoured with brilliant weather during the month of August, there would no doubt have been harvested something not much below an average of wheat, oats, and barley. But, unfortunately, with the exception of the earliest districts, the cereals were badly ripened, and great part harvested soft, and in many places were wholly lost, owing to the prevalence of wet weather from the middle of August to the middle of October, when there was a sudden and delightful change to sunshine, with east winds, for about ten days, and then the rain set

in once more, and at the time of writing this, the heavens are dripping with a woful flood. The effect of the cold autumnal rains has been more marked and mischievous in the potato field than anywhere else amongst the subjects of the husbandman's anxieties. The potato disease has prevailed more or less wherever the tubers were in the ground after the first week of August. A brief but brilliant period of sunny weather ripened the earliest kinds by the middle of July in all the southern parts of Britain; and, generally speaking, the crop was large and without blemish. But all the later kinds have been devastated. Seldom have we seen crops so promising, as to the size and abundance of the tubers, or so generally useless on account of the general spread of the murrain. In all damp and heavy soils the losses have equalled in magnitude and completeness those of the worst years of potato plague, but on some dry quick soils the crops have escaped, and have been stored in plenty and good condition. Looking forward, all is of course, uncertain. We cannot lift the veil that hides the future; happily for us it is so. But we see no encouragement to anticipate a good season in 1867 to make amends for the failures of the present year. The farmer must grieve that a soddened condition of the ground delays the ploughing of stubbles and the sowing of seeds. The gardener finds that many trees are still growing, that the wood of the season is for the most part soft, that a period of fine, dry, breezy weather is needed to ripen the wood and put the trees to rest before winter overtakes them and kills back their callow shoots.

It is not our wont to indulge in gloomy forebodings, and a cheerful spirit is at all times suitable, if only to help us to bear misfortunes with fortitude, provided it does not tempt us to shut our eyes to the truth, or take the warnings that nature offers us for our safety. We would not, therefore, be less cheerful than usual, but a sense of depression is inevitable in the present aspect of things, and in the consideration of what we feel to be a necessary part of our anticipations for the future. Our seasons occur in cycles, so many good years and so many bad ones. We appear to have passed through a cycle of good seasons, and to have entered upon a cycle of bad ones. If it be so, we can scarcely expect that 1867 has many advantages of production in store for us, and we very much fear that a general deficiency of crops must occur again, not once only, ere we enter upon the enjoyment of the maximum advantages and capabilities of our climate. Such a gloomy prospect could not be fairly entertained in the absence of data, but it is solely on data, the accuracy of which cannot be disputed, that we are led to fear that we shall not have an abundant and splendid summer until the year 1869.

It is one great advantage of our insular position that a general failure of crops rarely occurs. Even in this dripping autumn many large and fruitful tracts of land have been favoured with sunshine, and the productions of the season have been gathered in plenty and safety. It has seldom happened in this country that actual famine has paralyzed the strength of man, and the droughts, the deluges, the insect plagues common to many other lands, are known only in a

partial manner to the inhabitants of Britain. As there is never anywhere a certainty of man's labour being crowned with success, we are forced by the exceptions we experience to consider this a favoured isle, and see in our lot, even at the darkest times, reasons for thankfulness and praise to the Giver of all good, who teaches us again and again that "of ourselves we can do nothing," and that therefore we must put our trust in *Him*. With our deficient harvest and our scanty potato crop, the land abounds with food, and our commerce extends its range, and a thousand far-off fruitful fields are ready to pour their treasures into the lap of Britain. We need not be cast down, therefore, though the sky be overcast, but may proceed with our labours in hope, remembering that though Paul may plant and Apollos may water, yet it is God alone who gives the increase.

GRAPES FOR THE MILLION.—No. VI.

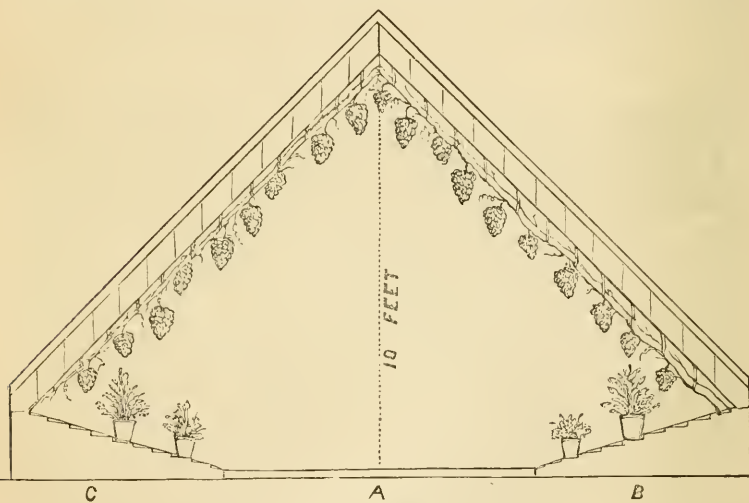
CONCLUDING THE SERIES.



AS it was intended only to offer a few sketches of cheap methods of growing grapes, it is not needful to extend this series beyond the present. The subject of grape culture may be said to be inexhaustible, for every variety has a history, and every cultivator has something to say about successes and failures differing in some respects from ordinary experiences. Yet if the production of first-class samples of certain of the most useful varieties is the aim of the cultivator, he has not much to learn; and after all it is as easy to grow grapes as scarlet geraniums, and, to many, a much more pleasant and profitable occupation. This last communication on the subject will be brief, but, I trust, not less useful than any of the preceding. Its object is simply to bring before our readers a figure of the most useful grape house for plain people, which it has been my lot to meet with during a long and active experience in the midst of horticultural activities.

When visiting, in the company of my excellent friend, Mr. W. Robinson, the gardens at Cyfarthfa Castle, Merthyr-Tydvil, in August last, we were entertained by our generous host, R. T. Crawshay, Esq., with an inspection of an extensive series of vineries and pineries extending over nearly four acres of land. The vineries were, in many instances, constructed on a scale of real magnificence. We saw ranges of two hundred feet length, with an almost unprecedented length of rafter and extensive borders covered with glass, heated with hot-water pipes, and thence downward, houses on every imaginable scale, severally apportioned to collections of vines in classes, securing to every class the precise treatment required for perfect success. The pineries were still more extensive, and contained thousands of plants, everywhere evincing the skilful treatment they receive at the hands of Mr. Hanna, who superintends the fruit department in this princely establishment. The crop of grapes was everywhere good; muscats well done; all the good old varieties were seen at their best; the fruit in the early houses having of course long

been cut, but in the later houses the glorious bunches hung as we might suppose them to have done at Eschol, though with so little help of man there, and under the sunny sky of Palestine instead of the cloudy, humid heaven of South Wales. To figure and describe some of these houses would be no contribution to the subject of grapes for the million; but I mention the foregoing particulars in order to secure the fullest attention of the humble class of grape growers to the plan which accompanies these remarks. We had almost finished our tour of inspection, when we were ushered into this little vinery, then in the full splendour of an extraordinary crop of Black Hamburgs. Though we had been for hours exploring an extraordinary place, an exclamation of surprise and delight escaped from both of us when we approached the open door of this house, and saw within a perspective of forty feet of jet black bunches sloping down on either hand in a continuous sheet of huge green



VINERY AT CIPARTHEA CASTLE.

leaves, that made a sort of firmament above the grapes. Compared with other houses in the garden this was but a toy or a shed, and the better as an example of what may be done without the aid of a princely fortune. We tasted the grapes, and agreed at once that we had never met with finer samples; the berries and the bunches were large; in colour they were perfectly finished, and the appearance of the house as to the beauty of the display, was by no means inferior to that presented by the grandest ranges in the place.

The figure is on a scale of 4 feet to 1 inch. The house is 40 feet long, 16 feet wide, and 10 feet high to the ridge. There is nothing at all peculiar in its construction, and it happens to be one of the oldest vineries in the garden. The door is in the usual place at A, and on either side there are borders, B and C. But these borders are constructed to render the appearance of the house more complete

than would be the case were the vines alone considered, for they are planted *in one border only*, the rods being taken up the rafters to the ridge and are then *trained down the opposite side*. The border is that in which the vines are planted, it is a good border, rather narrow for the 20 feet of rods which the roots have to nourish, but the roots probably run out beyond the house and pick up something. The arrangement is improved as a miniature promenade, by placing various ornamental pot-plants on the borders; these affording a pretty balance below to the splendid scene presented by the roof. It only remains to add, that there is but one 4-inch pipe all round for heating, and that a very small amount of heat is used; just enough in severe weather to prevent the temperature going far below the freezing point, and just enough when the vines are breaking and in flower to help them in case of cold, dripping weather, but never enough to force them, as may be understood by the fact that in the middle of August perfect ripening had not long been completed. I do not remember what Mr. Hanna told me respecting the average production of the house, but I know he said he cut two hundred bunches in the year 1865, and I should think the produce this year must have considerably exceeded that number. It must be remarked, however, that the mere number of bunches is no criterion of success. Large handsome bunches and large well-coloured and full-flavoured berries are only to be obtained by severely thinning the crop as soon as the setting process is over, and the bunches we saw were of the exhibition pattern, and the operation of thinning must have been carried out with vigour and judgment.

Here ends the series of "Grapes for the Million."

S. H.

A FEW BEAUTIFUL DECIDUOUS TREES FOR SMALL GARDENS.



ALTERATIONS and improvements are now in progress in gardens, and it is the season for planting. The names and brief descriptions of a few beautiful deciduous trees may therefore be useful to some of our readers. The subject, indeed, has scarcely ever yet had proper attention during the annals of British horticulture. There are innumerable species and varieties of beautiful trees in the country, but their names and characters are scarcely known beyond the limits of a few botanic gardens and arboretums. It might be thought that nurserymen and landscape gardeners would bring some of these trees into note, but it happens that as a rule they propagate and plant certain classes of trees that make an effect quickly, and which can be sold at a cheap rate; and too often ignorance is in the way of improvement much more than hard trade calculations. The consequence is, that we see limes, spruces, and other common-place trees planted abundantly without regard to the capabilities of the place. All these common trees are beautiful in their way, and we say nothing against them except that we do not wish them to stand

always in the way of the diffusion of others that are distinct, interesting, various, and beautiful, and which merit attention if only to break up the monotony of our gardens and shrubberies. The Deodar cedar, most beautiful of trees, would never have become popular unless it had happened to be one of the quickest growing, easiest raised, and most adaptable of evergreens. The desire of proprietors to cover large extents of ground at the lowest possible figure discourages a landscape gardener who would introduce rare and beautiful subjects. However, let us leave the commercial matters to settle themselves while we devote ourselves to the pleasing task of calling attention to trees that are pre-eminent for beauty, and that will be sure to meet with appreciation some day or other.

Kolreuteria paniculata. This pretty tree never attains to a great size. A pair now growing at Stoke Newington have been planted ten years, and their heads are now only six feet over, and they stand about seven feet high. The habit of the tree is very peculiar and elegant, the growth being diffuse and light, the leaves are pinnated in the manner of the ash, but are a thousand times more graceful, the divisions being prettily notched, and the appearance of the tree feathery. In July or August long spikes of yellow flowers are produced, which for a short time add much to the beauty of the tree. It will grow in any soil, and is quite hardy.

Liriodendron tulipifera. The "Tulip tree" has a bold, distinct habit, and a very peculiar leafage, the leaves appearing as if their points had been abruptly cut off. It is sometimes planted in avenues, and it may be put in the mixed borders, and by annual pruning be kept to the size of a bush.

Pyras spectabilis. This is the grandest of all the "flowering trees;" is as hardy as a wild crab, and improves with age like good wine. The flowers completely smother the tree in spring; they are white, red, blush, or a mixture of all three shades. The pure white variety is perhaps the best, though very scarce. But it matters not if the commonest variety is planted, there is nothing to beat it.

Double-flowering peaches. The double-flowering peach, called *Persica Vulgaris flore sanguineo pleno*, is a grander tree than its elongated name would lead any one to suppose. The flowers are large crimson, and are produced in such abundance every spring as to make the tree look like a little mountain of fire. This is the hardiest of the series, of which there are several. The white flowered variety is tender. They are all good trees to grow in pots for forcing.

Liquidambar imberbe is like a small maple, but gorgeously coloured in autumn, when the leaves die off a rich purplish red colour. Very often *L. styraciflua* is sent out for it, which is the substitution of a satyr for Hyperion, the last named having no beauty.

Catalpa syriaciflora requires plenty of room, and is quite out of place in a small garden. But in a suitable spot there are few trees more grand in outline and characters. Its huge spreading head, its large handsome leaves, and its thousands of spikes of whitish lilac flowers, produced in July, are features that claim for the tree the characterization of "magnificent." It requires a deep

loamy soil, and is quite hardy, though in hard winters much of the young wood is killed back.

Small-leaved elms. There are two exquisitely pretty elms suitable for the choicest gardens. They are called respectively *Ulmus viminalis* and *U. v. variegata*, the second being a variegated form of the first. They form dwarf pendulous bushes, very dense, and full of grace, with slender twiggy branches, and neat little birch-like leaves. Any lover of such things would be sure to find pleasure in them.

Salix Americana pendula. This, the so-called "American willow," is in reality a British species. When worked as a standard it forms one of the most elegant of all weeping-trees. The head grows symmetrically, throwing out long whip-like arching shoots of a pale red, clothed with small bluish green leaves. For a *bijou* tree to plant beside a fountain, there is nothing better. It also makes a nice bush, but I have never seen it in nurseries in that form. However, those who want bushes, and can wait for them, may raise any quantity by putting in cuttings in winter: every cutting will root. I would undertake to raise enough from one tree, to begin with, in the course of three years, to plant a hedge of it from London to York.

Weeping poplar. There is in the English nurseries a weeping-tree which is scarcely known amongst collectors of such things, though it is the finest weeping-tree known. The name of it is *Populus canescens pendula*. The growth is so truly pendulous that a tall standard will produce branches that in a few years will touch the ground and form a sort of bell tent of beautiful leafage. Another nearly, if not quite as good is *Populus tremula pendula*, a variety of the aspen poplar. Any one wishing for a superb lawn tree, and having some aversion to the weeping-ash (which is a true beauty, though London people get sick of it, because it is always planted in tavern gardens) may plant either of these with perfect safety. To regret the deed is possible only with a lover of pitchforks and corkscrews.

Fern-leaved beech. The variety of *Fagus sylvatica* called *heterophylla*, has the leaves very finely and curiously divided. It is very pretty, and what beech is not?

Silvery maple. The well known *Acer pseudo-platanus foliis argentea* is the grandest of the variegated maples. It is well known, and is one of the few beautiful trees that happens to be thoroughly appreciated. How grand are some of these specimens at Stamford Hill and Stoke Newington. Come and see them in May next, and if unable to find them, call on me at 6, Lordship Terrace, and I'll be your guide, with mere civility for wages. For a fine big tree to light up a plantation, nothing better.

Snowy mespilus. The small growing, round-headed *Amelanchier botryapium* is always neat and pretty. But see it in bloom, and say the snow falls when the sun shines, and trees wear white gloves, like judges who have nobody to hang. And that puts me in mind of—

The Judas Tree, which I grow as a bush six feet high, and six feet through. In the spring it is tasselled with rosy pink flowers all along the ripe wood, and for the rest of the summer it is like a

gigantic specimen of *Adiantum reniforme*. Could anything be more splendid? Seeing is believing, at least with some people. "Veni, vidi, vici."

Two choice thorns. For a change plant *Crategus Mexicanus* and *C. oxyantha pendula*. The first is a fine evergreen, glorious in leaf, flower, and fruit. The second is a "genuine" weeping thorn, full of grace and glory. Of course you know all about the scarlet-flowered thorn, and the *double* scarlet-flowered thorns, and the pink and double white, and all the rest of such beauties, "which e'en to name would be unlawful," so well are they known, and so much are they beloved.

In seeking specimens of any of these, try your own nurseryman first, and if balked, hindered, and shut up, try the Cheshunt Nurseries.

SHIRLEY HIBBERD.

THE CHOICE GARDEN.—No. II.

A FEW SELECTIONS AND COMBINATIONS.



IDID promise to say some more about the hardy garden, and I will now remark upon the various families of herbaceous plants that may be employed to embellish it. I will, therefore, first describe a bed I have seen, which for grace and beauty cannot, I think, be surpassed.

The bed is a circle twelve feet in diameter. It is raised above the general level, so as to present a gentle convexity of the same degree as an ordinary watch-glass. In the centre is a fine pampas grass, *Glycerium argenteum*. At a distance of three feet from the pampas grass all round there are clumps of the gorgeous *Tritoma uvaria*, the fiery flowers of which shoot up through the fountain-like leaves of the pampas, and have a most magnificent appearance. Between the clumps of tritoma are tufts of the rather new and splendid grass, *Arunda conspicua*, which has been flowering most gaily since the middle of June. This is quite green all the winter, and always beautiful. It does not grow so tall as the pampas, and is more robust in appearance. Between these grasses and the margin are clumps of *Spiraea filipendula*, which cannot be surpassed for grace and beauty; *Statice latifolia*, a very bold and handsome plant; *Aspidistra lurida variegata*, which is quite hardy, and has all the splendour of a choice variegated stove-plant; *Funkia Sieboldii variegata*, a most beautiful plant in both leaf and flower; the margin is furnished with tufts of small grasses, such as *Festuca ovina glauca*, *Dactylis glomerata variegata*, *Stipa pennata*, and *Eragrostis elegans*. This is not all. There are spaces between the several plants, and these spaces are filled up with French marigolds, of a very excellent kind, the seed of which I was informed had been obtained from Messrs. E. G. Henderson, of St. John's Wood. I have never seen a more beautiful bed than this. So much grace and majesty, with a brilliant display of colour, I should not find in any promenade garden,

for hardy plants are thought not good enough for such places, and so they have tender plants that are destitute of all grace.

A BED OF SAXIFRAGES AND HOUSELEEKES.

I shall now describe a very different sort of bed. It is to be seen in the centre of the herbaceous garden in the grounds of the Royal Botanic Society, Regent's Park. This also is a circular bed, raised above the level by a gentle swell. It is divided from the centre into compartments, each compartment being, of course, of a wedge shape, the apex at the centre, and the base forming part of the boundary of the bed. The bed measures about fifteen feet across, it is likely to be a foot or so more in width rather than anything less. The compartments are eight in number—four of them consisting wholly of saxifrages, and four of sempervivums, the effect is most remarkable, simple, yet grand; and in the early part of the summer, a vast sheet of flowers beautifully harmonized, at all other seasons luxuriant in the most elegant leafage, a masterpiece of effect with only eight sorts of hardy plants. The saxifrages are, *S. hypnoides*, *S. pulchella*, *S. oppositifolia*, and *S. aizoides*. The first-named has swelled up into huge pillowy tufts of the brightest emerald-green, looking like a bed for a weary man to recline upon and forget his troubles; the other sorts are rich, without a break, and most luxuriant in growth. The sempervivums or houseleeks are *S. hirtum*, *S. Californicum*, *S. montanum*, and *S. arachnoides*, all of a fine growth, and producing myriads of red flowers. When Mr. W. Robinson had the care of the herbaceous garden there, I have stood with him on a sunny day in June, and seen the flowers of *S. hirtum* as thickly covered with bees as the great sheet of vegetation was thickly covered with flowers; and we have agreed that for an inexpensive and interesting sort of gardening, there could be nothing to surpass such a bed as that, as it only needs to be made of sandy loam, and planted with tufts of the proper plants a foot or so apart, and then will take care of itself, and continually improve in appearance during any ordinary lifetime. And it has this advantage, that on a small scale it is equally effective; the reason it is on a large scale there is that the place is large, and the herbaceous garden contains many things that have no beauty, and this bed is a sort of compensation to reward for their trouble of seeking it those who might feel disappointment with a collection formed for botanical purposes only.

A BED FOR THE DRAWING-ROOM WINDOWS.

The bed I now describe is in the Editor's garden. I asked his permission to place it in my "Choice Garden," and, of course, obtained permission directly. It is a great circle raised above the level, the diameter is twenty-four feet, and the elevation above the general level varies from eighteen to twenty-four inches, the ground being a slope where the bed is situated, but the bed itself forms a dead level. The centre consists of a mass of *Rhododendrons* eighteen feet across, which leaves a margin of three feet all round. This margin is planted with a ring of *Cabbage Roses* close in front of the rhododendrons, and outside the roses is a ring of the beautiful *Coton-*

easter Simmonsii, and the spring-flowering *Deutzia gracilis*, which I am surprised to find is generally grown in England as a greenhouse plant. I admit it is one of the prettiest spring-flowering shrubs we have, and is easily forced, but it is quite hardy; and I am glad to have met with it out of doors to wreath with snowy flowers this "magic ring," which is the name this bed bears, having been originally designed for the experimental cultivation of the moss-like *Spergula pilifera*. In case I should be misunderstood, let me repeat that the plants in the outside band alternate, a *Deutzia*, next a *Cotoneaster*, next a *Deutzia*, and so on all round. The bed is kept up on the margin by a wall of large burrs, such as rockworks are mostly made of in the gardens near London, but very little of this is seen, for over it hangs a continuous sheet of the noble German ivy, *Hedera Regneriana*, which is one of the finest of all plants for the purpose, and makes a pleasant change from the common Irish ivy, *Hedera canariensis*, which we see everywhere. Let me dwell for a few moments on the beauties of this combination. Amongst the rhododendrons are many very choice kinds, such as the *variegated-leaved* variety of *R. ponticum*, a most beautiful shrub; also the very early-flowering *R. dauricum*, which is dotted with little rosy flowers from February to April, and a few always appear in November and December. Also *R. hirsutum* and *R. ferrugianum*, very choice small-leaved sorts, with such hybrids as *Jacksoni*, *Hendersoni*, the *Queen*, *Roseum*, *Alarm*, and others equally splendid, when in flower. One of the very best is *Maculatum nigrum*, which is grandly spotted. There are, also, some plants of *Kalmia rubra*, a small-leaved sort, with violet-red flowers; and *Erica Mediterranea*, and the elegant *Ruscus aculeatus* or "Alexandrian laurel." Thus, the great centre piece is rich and varied, and from February to June there are flowers to be seen—the principal display being in the month of May. Just at that time the *deutzias* near the outside zone of ivy begin to flower, and their snowy blossoms look most chaste and beautiful. When they are declining, the cabbage roses flower, and their delicate colours are enhanced by the fine deep green background of the rhododendrons. At the same time, the *cotoneasters* flower, but they make little show until all the flowers are past, and then they display abundance of their orange-red berries, which last through the winter. This particular bed is the more pleasing because every one of the plants has been raised on the spot, and are the results of various experiments in propagating. The *cotoneasters* were all raised from berries; and I saw in the garden several large batches of seedlings of the same plant, which is raised in quantities every year. How many a garden needs such a bed as this, and how easily it might be made, with a judicious outlay in the first instance! There is wanted a good position, next a platform of good loam, high enough to allow of cutting down on the outside to a regular ring, which is to be finished with large stones or burrs. In the centre there must be two feet depth of rhododendron soil, such as sandy loam, rich in vegetable fibre, or peat well chopped up with about a third part of the most silky-textured hazel loam added. The planting is a simple affair enough, and that accomplished, there is nothing more to do, but a

little pruning and weeding occasionally, and the training of the ivy, to make the most of its growth, as for the first year or two it is rather slow. The Irish ivy would answer well for it, but I should prefer the rich dark hue and large leathery leaves of the true German kind.

I hope such simple things as I have this time described, will please your readers, and be useful to many. I will hope in future papers to bring forward many more beautiful effects produced by materials that cost but little of money, and afford much enjoyment without care.

KARL PROSPER.

USEFUL BULBS AND TUBERS.



HAVING promised a few more notes on useful bulbs, I shall now treat of a few favourites that are not always as well grown as they deserve to be, and first of all we will take the charming

LACHENALIA.—This is one of the easiest of plants to grow well, and I believe it is better grown at Stoke Newington than in hundreds of gardens where it is supposed that everything is perfect. I know that in my rambles about I rarely see such plants as ours. I see them with thin, flabby, and, perhaps, bruised leaves, and a few poor spikes of flowers, but I expect them to have leaves an inch or more across, very fleshy, a rich deep green colour, and richly spotted, and I expect half a dozen large spikes in a five-inch pot from half a dozen bulbs, and a few more spikes rising to succeed the first lot. As I am sure our system cannot be surpassed, I will briefly describe it. The bulbs are potted as soon as they begin to grow naturally, in a mixture consisting of three parts mellow loam, half a part of thoroughly-decayed hot-bed manure, and half a part of silver sand. I have them always in five-inch pots, because the whole stock when in bloom are put out of doors to make a lovely margin to a bed on the “plunging system.” Six bulbs of the largest size are put in a pot; all the small ones being potted separately, and rather thickly to increase in size, for the next season. They remain out of doors, and have all the rain that falls, and take their chance like hardy plants until there is actual fear of frost. Then they are removed to a top shelf in a light, airy, cool house, where there is enough hot-water-piping to keep out frost, and no heat is used except in frosty weather. The amount of protection is, in fact, not much more than they would have in a common frame. It is an important matter to keep them always moist, near the glass, with plenty of air, but never to be frozen. Starvation ruins them, and heat is not good for them, though, if forced gently, they flower well. Ours do not bloom usually till the middle of April, and they then make splendid show. One lot is always used for the outside margin of a circular bed, which is then usually filled with a mixture of tulips, hyacinths, and elegant hardy shrubs—all in pots plunged in cocoa-nut fibre. There are several varieties entered in the catalogues, but *bicolor* and *tricolor* will suffice for all ordinary purposes.

DOG'S-TOOTH VIOLET.—This exquisitely beautiful plant, *Erythronium dens-canis*, is not half appreciated as it deserves, and it seems to owe some of its obscurity to the prevalence of a belief that it is difficult to grow. The fact is, the more you do for it the less it likes you. In the front of a peat-bed is a capital place for them; or in any thoroughly sandy loam. To be well drained is of the greatest importance. They are hardy as oaks, and in the early days of spring their leaves and flowers are alike so beautiful that whoever gives them a fair chance will never after be without them. I name as few varieties as possible generally in these notes, because if people want myriads of varieties of any particular class, they have but to hunt them up in trade catalogues. But in this case, I mention all I know, and recommend *album*, *album major*, *purpureum*, *purpureum major*, *roseum*, and *Americana*.

TRITONIAS.—People will persist in confounding tritonias and tritomas, yet they are as distinct as lilies and ixias. I saw not long since at a flower show, a specimen of *Tritonia aurea* labelled *Tritoma uvaria*! This came from a celebrated nursery, the proprietor of which is an old exhibitor!! Tritonias are not quite hardy, but they may be grown out of doors in a bed of sandy peat well drained, with some protection in winter. The best for out-door purposes is, *T. aurea* (sometimes called *Crococoma aurea*). This forms a fine bush-like mass two feet high, well covered all the summer with pretty orange-coloured flowers. To grow it out of doors the bed must be sheltered, and the plants must have a cover of cocoa-nut fibre piled over them all winter. The note on ixia and sparaxis in last month's number, will afford all the information required. As to pot-culture, all the tritonias can be managed easily. Pot the bulbs in autumn, in well-drained pots of sandy peat. Give very little water until they are growing freely, and keep them in a cool greenhouse or frame, taking care that frost does not get to them. When they begin to grow, give air frequently, and as they advance increase the supplies of water. If extreme neatness is required, they should be neatly tied to thin green stakes, but I prefer to let them sprawl about *au naturel*. Put a row of *T. crocata* in bloom, and in the sprawling state, all along the front of the conservatory stage, and what a glorious sight you have. All the species and varieties are good, but I recommend particularly, in addition to the two already named, *T. concolor*, *T. eximia*, *T. fenestrata*, *T. lineata*, *T. rosa*, *T. speciosa*.

ALSTREMERIA.—These are best known to the old class of gardeners. They are truly fine things, producing many racemes of flowers of brilliant red, orange, rose and carmine colours, variously barred, and striped. They are generally supposed to be tender, but if properly treated are hardy enough to endure any of our ordinary winters, and may, therefore, be planted with perfect safety. The way to manage them is to plant them in a dry sandy loam or peat, consequently, they are well adapted for beds and borders, which have been prepared for *Calandrinia umbellata* (a lovely herbaceous plant), *Sempervivums*, *Erythroniums*, and *Tritonias*. A well-drained position, a bed raised above the level, and the shelter of a wall or large

mass of shrubs, are conditions favourable to success. In planting, put the tubers nine inches deep, with their buds or crowns uppermost. Leave them untouched several years, and they will become fine specimens, throwing up their flowers freely one to three feet high, and making a splendid display during the summer months. The tallest kinds are *A. aurea*, orange-red; *A. pulchella*, scarlet; *A. hæmanthus*, vivid red; *A. psittacina*, red and green; *A. Chiliense*, various; *A. Brasiliense*, red; and *A. argentea vittata*, red and yellow: the last grows six feet high, and is rather more tender than the rest, but will do under a warm wall. The dwarfer kinds are *A. odorata rosea*, rose; *A. pelegrina*, red and blush, quite a gem. There is, also, a white variety of this one, called *alba*, and *A. tricolor*, white, crimson, and yellow.

LILY OF THE VALLEY.—Great is the dismay when a garden refuses to produce flowers of the lovely lily of the valley. And some gardens do refuse, no one knows why. Perhaps bad management is the real key to the failure. I never planted it in any kind of soil or situation but it grew like a weed. Three years ago I put a few small tufts that had been forced in pots, into a shady border close beside my little garden-house, where I work all the summer, and they have spread into a great sheet, and actually run out so far into the gravel-walk that we tread upon them in going to and fro, and they grow as well in the gravel as the loam. If any difficulty is met with in growing this plant in the open ground, prepare for it a piece of deep, well-manured loam, plant at any time, but best of all in autumn, and let the roots be only two or three inches deep, and leave them alone. You will, no doubt, be well rewarded. If the little bulbs are put in singly, a foot apart, they will meet by the second season after planting, and flower abundantly. The way to grow it in pots, and to force it for early bloom, has been described by Mr. Howard in a former issue of the FLORAL WORLD. It may be proper, however, to add that the best roots for forcing are those imported from the Continent by the dealers in bulbs—they are larger, and every way better than can usually be grown in English gardens. I have a pretty collection of varieties, which I keep in pots, and they come in usefully sometimes for exhibiting, and are charming subjects for the decoration of the greenhouse. Those with variegated leaves I grow in sandy peat, and keep them several years in the same pots, preferring to shift them to larger sizes as the pots are filled, to shaking them out, as a certain degree of starvation preserves the beauty of the leaves. The prettiest of these is *Convallaria majalis foliis striatis*, the leaves are elegantly variegated with golden lines. Another is called *Foliis marginatis*, having elegantly-variegated margins. There is a pretty double-flowered variety called *flore pleno*, and there is a red-flowered kind called *rubra rosea*, which has a delicate tinge of colour. It makes a change, but it is certainly not more beautiful than the white kind.

CROWN IMPERIAL.—This, the *Fritillaria*, can be grown well in any common border, but the smaller kinds are better adapted for pot culture than the open ground, and they require a sandy peat soil. The common Crown Imperial, *Fritillaria imperialis*, requires a

rich, deep, moist loam, such as most herbaceous plants thrive in. In almost every well-kept garden the common soil is good enough for it. It is a noble subject when in flower, and is so much a favourite that the Dutch growers have raised hundreds of varieties. The best of these are, *King of Holland*, *Maximum*, *Slagezward*, *Double yellow*, and *Double red*. There are two charming varieties with variegated leaves; one is *gold variegated*, the other is *silver striped*. These make splendid clumps or beds. The best of the smaller kinds is *F. meleagris*, of which there are several varieties. It is a most beautiful plant. This is well worth growing in pots, but it is quite hardy, and will do well in the border. The varieties of *imperialis* grow four feet high, *meleagris* grows only one foot. S. H.

THE NEW ROSES FOR 1867.

BY W. D. PRIOR.



THE annual French invasion of these shores is now taking place; not in the dire and hostile form of bearded Turco, or fierce Zouave, armed with the formidable "Chassepôt" rifle, but under the more pleasing and insidious guise of charming roses, if their highly coloured descriptions are to be believed, as beautiful as new; the only terms for their exchange being a respectable contribution from the pockets of "Jean Bool." One of the leading Gallic raisers already states that there are some eighty or more varieties placed upon the market. Of course it is impossible that all these can be novelties or improvements upon what we already possess; nor, indeed, shall we see all of them here. Every season, from one cause or other, there are several which do not reach this country, and to take up a French list of any extent, twenty or thirty names during the last two or three years will be found which we have never even heard of. Experiment, however, is the only test of merit, and we must consequently put up with the trouble and expense of trying numerous kinds in order to be able to select comparatively few additions to the notabilities of our rosaries.

If we take the lists of such raisers as either of the firms of the Verdiers, we shall probably exhaust the new kinds, that is of superior promise or note, which the enterprise of our nurserymen are likely to import into England. Beginning with the TEAS, M. Charles Verdier (the old establishment) gives six as sent out for the season by various raisers. The translations following are as literal as may be, though it is as useless as uninteresting to follow their elaborate enumeration of leafage and growth.

Belle Cuivre (Pernet).—Habit vigorous; branches upright and strong; flowers large, nearly full; colour very lively copper.

Bouton d'Or (Guillot fils).—Habit vigorous, flowers medium; sufficiently full and of good carriage; of a superb deep yellow; very striking, reverse of the petals white. Seedling of Tea rose Canary.

Lucrece (Oger).—Habit moderate; flowers large, very full; the

shape of an open cup, with a rosette in the centre; salmon rose, passing to deep rose.

Madame Bremont (Guillot fils).—Habit vigorous; flowers medium or large, very full; of good carriage, varying from fine red purple to very deep purple. This should be somewhat of a novelty among teas, and a variation from the various tinges of yellow, flesh, and pale rose, that usually prevail.

Madame Margottin (Guillot fils).—Habit very vigorous; flowers medium or large; very full; a little globular; of fine carriage; colour fine deep citron, with a fine rosy peach centre; edge of petals white.

Monsieur Furtado (Laffay).—Surely a masculine nomenclature is especially out of character in Tea roses! Habit very vigorous; flowers medium or large; very full, well made; in panicles; clear sulphur yellow.

BOURBONS.

Éillet Flamand (Oger).—Habit vigorous; flowers medium, full, and flattish; lively rose, variegated, and striped pure white.

Petite Amante (Soupert et Notting).—Habit very vigorous; flowers medium, very full; petals imbricated at the circumference, a rosette in the centre; colours very fresh rose, the backs carmine red. Seedling of Louise Odier.

HYBRID PERPETUALS.

Alba Carnea (Touvais).—Habit very vigorous; flowers medium, full, well formed; white lightly tinted rose; reverse of petals pure white. Seedling from Gen. Jacqueminot.

Antoine Ducher (Ducher).—Habit very vigorous; keeping well; cup shaped; lively red. From Madame Domage.

Aspasie (Touvais).—Habit very vigorous; flowers full, well formed; lightly expanded; fine clear red; centre crimson.

Baronne Hausmann (Eugene Verdier).—Habit vigorous; flowers large, full, and well made; fine red carmine, blossoming three to eight on the same stalk.

Baronne Maurice des Gravières (Eugene Verdier).—Habit vigorous; flowers large, in clusters of three to eight; well made, of good carriage; fine red cerise; brightly clouded and shaded with rose and carmine; reverse of petals whitish.

Capitaine Paul (Boyau).—Habit vigorous; flowers medium size; well shaped; opening well; bright red.

Charles Verdier (Guillot père).—Habit very vigorous; flowers very large, very full and well formed; opening well; edge of petals whitish; of first quality. Seedling from Victor Verdier.

Claire Renard (Oger).—Fixed sport from Baronne Prevost; colour between that and Triomphe d'Alençon.

Comtesse de Turenne (Eugene Verdier).—Habit very vigorous; flowers large, full, imbricated; from three to six together; tender flesh, centre bright.

Comtesse de Vallier (Damaizin).—Habit very vigorous; flowers medium, full, well formed; deep purple violet; clouded, blackish; superb. So says Monsieur Damaizin.

Comtesse Felicie Morgues (Pernet).—Habit moderately vigorous;

flowers large, full, of a fine bright red; middle petals edged white. Seedling of Victor Verdier.

Comte Litta (Eugene Verdier).—Habit vigorous; flowers large, full, well shaped; petals very large, folded; colour velvety, mixture of flame and purple, bordered violet. Extra.

Eugene Seribe (Gautreau).—Habit very vigorous; flowers very large, full, and well formed; glowing fiery red. Seedling from Triomphe de l'Exposition.

Felix Genero (Damaizin).—Habit very vigorous; continuous blooming; flowers large, full, good shape; fine violet rose; very pretty.

Francois Dubois (Damaizin).—Habit very vigorous; flowers large, full; very bright red, shaded crimson.

Francois Treyve (Liabaud).—Habit very vigorous; flowers large, full, shape of "Centifolia"; of a fine scarlet, deep and glossy; new colour. Extra.

Gloire de Montplaisir (Gonod).—Habit very vigorous and free flowering; flowers large, full, well made; very bright red.

Horace Vernet (Guillot fils).—Habit very vigorous; flowers extra large and full; large petals; of fine carriage; velvety red purple, clouded deep crimson; plant of grand effect.

Jules Calot (Eugene Verdier).—Habit very vigorous; flowers large, in panicles; full, very well formed, keeping well; bright red carmine, strongly edged whitish.

Madame Anna Buguet (Gonod).—Habit vigorous and free flowering, in corymbs; flowers large, full, imbricated; flesh white passing to rose "jasper"; what this colour is it is somewhat difficult to picture to our insular imaginations.

Madame Bellenden Ker (Guillot père).—Habit moderately vigorous; very free flowering; moderately full; superb pure white.

Madame Dubois (Fontaine).—Habit moderate; flowers large, full, well formed; striking vermilion red.

Madame George Paul (Eugene Verdier).—Habit vigorous; flowers large, full, imbricated, very well formed; petals large and rounded; of a fine lively rose, strongly clouded and shaded; edged whitish at the circumference; very fine.

Madame Pulliat (Ducher).—Habit very vigorous; flowers medium, globular, keeping well; deep rose.

Madame Rival (Gonod).—Habit very vigorous; flowers large, full, well shaped, delicate satin rose. Seedling from Auguste Mie.

Madeleine Nonin (Ducher).—Habit vigorous; flowers medium, single, very full; form of the "Centifolia"; light salmon rose; freely continuous.

Mademoiselle Annie Wood (Eugene Verdier).—Habit very vigorous; flowers large, very full, perfectly imbricated; fine clear red; a variety quite out of the common way.

Mademoiselle Berthe Chanu (Fontaine).—Habit vigorous; flowers large, perfectly imbricated, of a pretty lively rose carmine; very free flowering.

Mademoiselle Eleanor Grier (Eugene Verdier).—Habit vigorous; flowers large, full, perfectly shaped, fine deep rose. Extra.

Mademoiselle Jeanne Marix (Liabaud).—Habit very vigorous; flowers very large, full and cupped, bright rose marbled purple; superb.

Mademoiselle Marie Villeboisnet (Trouillard).—Habit vigorous; flowers very large, flattish; lightly imbricated, of a fine tender rose; superb.

Mademoiselle Thérèse Coumer (Liabaud).—Habit vigorous; flowers large, full; bright satin rose, centre pure white; constant blooming. From Geant des Batailles.

Monsieur Chaix d'est Ange (Leveque et fils).—Habit vigorous; flowers large, full, very well formed; brilliant red vermilion; very free flowering.

Monsieur Jean France (Levet).—Habit very vigorous; flowers medium; well shaped, full, deep purple.

Monsieur Loriol de Barny (Trouillard).—Habit vigorous; flowers large, cupped; regularly imbricated; fine currant red, very bright and brilliant.

Monsieur Noman (Guillot père).—Habit vigorous; very floriferous; flowers large, full; delicate rose; edge of petals lightly bordered with white. Seedling from Jules Margottin.

Monsieur Plaisançon (Ducher).—Habit very vigorous; flowers very large, full, globular; very well shaped; deep carmine; continuous bloomer.

Monsieur Thiers (Trouillard).—Habit vigorous; flowers large, very full; exterior petals regular, those in the centre lightly folded; of a fine brilliant red.

Napoleon Third (Eugene Verdier).—Habit vigorous; flowers large, full, of a magnificent and unique colouring; composed of two different colours, perfectly distinct, very bright scarlet and deep violet slate. Extra.

Panaché de Luxembourg (Soupert et Notting).—Fixed sport of "Dr. Arnal"; colour purple and violet red; striped and flaked with salmon rose.

Paul Verdier (Charles Verdier).—Habit vigorous; foliage fine clear green; flowers large, full, and of perfect form; flowering from three to eight upon the same stalk; magnificent lively rose.

President Porcher (Vigneron).—Habit very vigorous; flowers very large; fine clear rose, clouded carmine, and keeping well. From Triomphe de l'Exposition.

Rose Perfection (Touvais).—Habit vigorous; flowers very large, full, of admirable shape; very brilliant deep satiny rose.

Sœur Thècle (Fontaine).—Habit vigorous; flowers large, full; very well formed; rosy carmine; edge of petals silvery; flowering and opening well.

Souvenir de Monsieur Boll (Boyau).—Habit vigorous; flowers full, large, very well formed; of a fine red cerise, clouded orange (I suppose this is what is meant by aurore). Extra.

Thorin (Lacharme).—Habit very vigorous; large, full, well shaped; bright, pure rose; superb.

Triomphe de Soissons (Fontaine).—Habit very vigorous; flowers

large, very full, well made; rosy flesh, lightly shaded with salmon; blooms continuously.

Velours Pourpre (Eugene Verdier).—Habit vigorous; flowers large, full; bright velvety crimson, suffused with deep brown, scarlet, and violet.

Ville de Lyon (Ducher).—Habit very vigorous; flowers very large, full, globular; deep rose.

MICROPHYLLA.

Premier Essai (B. Geschwind).—Habit very vigorous; flowers medium, full, petals folded at the tips; colour flesh white, centre red carmine, bright, passing to very fresh rose.

Beside the above, there are in M. E. Verdier's list:—

Berthe Chann (H. P. Fontaine, senior).—Vigorous; bright carmine rose.

Euryanthe (Peters).—Red, shaded black, changing to blue. I fear he must have had my "blue rose" in his mind when he wrote that description.

Gloire de Thelwitz (Peters).—Scarlet and lake. Should be a fine colour. This name is new as a raiser.

Granger has *Adrian Marx*, raised by M. Camille Bernardin, and propagated by himself.

Verschaffelt also advertises *Isabelle Sprunt*. Surely the genius of incongruity must have presided over the conception of this name—the mellifluous and romantic Isabelle in conjunction with Sprunt! From a coloured lithograph of this introduction it would appear to be a tea or noisette of the pale yellow section; not so full as it might be, and unlikely to take rank with Marechal Niel. Margottin does not appear to have entered the field, at least no list has come yet to hand.

With a view to make this paper as valuable as possible, here follows a piece of information not commonly to be had—the selections of the best kinds out of the above list by M. C. Verdier and MM. Leveque, according to what they have seen and heard:—

C. VERDIER.

Bouton d'Or.

Madame Margottin.

Monsieur Furtado.

Œillet Flamande.

Alba Carnea.

Capitaine Paul.

C. Verdier.

Comtesse F. Marques.

Comte Litta.

Eugene Scribe.

Felix Genero.

Horace Vernet.

Madame George Paul.

Mdlle. Annie Wood.

Mdlle. Eleanor Grier.

Monsieur V. Villeboisnet.

Monsieur Thiers.

Napoleon Third.

Paul Verdier.

President Porcher.

Rose Perfection.

Sœur Thècle.

Souvenir de Monsieur Boll.

Thorin.

And another of Monsieur Lacharme's, if the above is not the one since named.

LEVEQUE ET FILS.

Monsieur Furtado.
 Paul Verdier.
 Napoleon Third.
 Mdle. Annie Wood.
 Mdle. Eleanor Grier.
 Madame George Paul.
 Eugene Scribe.
 Horace Vernet.
 Felix Genero.
 C. Verdier.

Antoine Ducher.
 Mdle. Jeanne Marix.
 Gloire de Montplaisir.
 Madame Anna Buguet.
 Rival.
 Rose Perfection.
 Alba Carnea.
 Monsieur Noman.
 Monsieur Chaix d'est Auge.

HISTORY AND CULTIVATION OF THE CHRYSANTHEMUM.

BY MR. SAMUEL BROOME,

(Gardener to the Honourable Society of the Inner Temple).



HERE is not in the cornucopia of the floral goddess a flower but has its votary, and few that can boast more admirers at the present time than the chrysanthemum; for no human being not utterly perverted can scorn such flowers, nor can they be offered to the spoiled child of fortune without an implied compliment. It, however, has been said that fashion seldom interferes with nature without diminishing her efficiency—a statement which certainly cannot be said to relate to the chrysanthemum, for every year advances their symmetry, beauty, and popularity, and makes us acquainted with other improvements through new varieties which were little anticipated. It would astonish Mr. Colville, were he now living, to see the difference between them and the stranger beauties which the floricultural world flocked to admire for the first time in his nursery at Chelsea. Such is the effect of human skill and care in improving even the loveliest gifts of nature.

The number of Mr. Glenny's "Gardener's Gazette" for October, 1860, contains a very interesting article on the introduction of the Chinese chrysanthemum into England. The writer says it flowered for the first time in this country at Mr. Colville's nursery, King's Road, Chelsea, in November, 1795, in which year the name Chrysanthemum (Golden Flower) was first given to it by Linnæus, who divided them into two species, calling the one with a small flower *Indicum*, and the other with a large flower *Sinensis*. But after his time a diversity of opinion arose among botanists as to its proper generic name. Some of them say it belongs to the genus *Anthemis*. English writers call it *Chrysanthemum*, except Sweet, who considers it a species of *Pyrethrum* (Feverfew), and places it under the head of *Dendrathera* (shrubby kinds). The differences of opinion arise from the small membranous scales, resembling chaff, found on the receptacle of the flowers of the Chinese chrysanthemum at the base of the florets—such being characteristic

of the genus *Anthemis*, while the receptacle of the true genus *Chrysanthemum* is without chafflike scales; nevertheless they are, in my opinion, both the same species. In the Horticultural Society's Transactions of 1831, a History of the *Chrysanthemum* is given by Mr. Sabine, who says they were cultivated in the gardens of Holland, and described by the celebrated Breynius as far back as 1688. He calls it *Matricaria Japonica*, and speaks of six varieties; but it appears to have been afterwards lost, as no gardener in 1821 knew anything of them. In January, 1826, Mr. Sabine, again referring to the *chrysanthemum*, says (speaking of the rapid progress the flower has made in this country in a few years), that the shows of the flowers at the Society's gardens in 1824 and 1825 had been acknowledged by its admirers to be (taking them as a mass) the most splendid and gorgeous exhibitions ever seen, even in the gayest time of the year. The show consisted of 700 pot plants. They began to bloom in October, and continued till December, with now and then changing a few of them for later blooming ones, thus enlivening the garden at a period when there was nothing else to attract attention. Many of these varieties were collected by Mr. Parkes at China and Bengal in 1821, and some of them sent home by the Society's gardener, Mr. John Potts. The whole of the different varieties in the garden at this period was forty-eight. These were introduced into the gardens of England at the following times:—one from China to France in 1789, was brought from Kew to Paris in 1790; seven from Sir Abraham Hume, between 1798 and 1808; one from Mr. Evans in 1802; one by Captain Rowes in 1816; one from Captain Larking in 1817; one by Messrs. Brooks in 1819; one by Mr. Rewes in 1824; two not known; four are English sports; and the remainder were sent from China by the Society's agents up to 1824. Mr. Colville, a nurseryman at Chelsea, sent to the Society a sport in 1822, of a pale pink, grown from the changeable buff; we have a great many at the present time from sports exceedingly good—namely, *Hermine*, *Trilby*, *Cedo Nulli*, *Yellow Formosum*, *Lilac Cedro Nulli*, the coloured plates of several varieties of which were shown—namely, the early blush, Parkes's small yellow blush, *ranuncula*, the tasselled yellow, the changeable buff, the curled blush, the tasselled lilac and two-coloured red, the pale buff, the Windsor small yellow, the clustered yellow, the clustered pink, the semi-double orange, the starry purple, the two-coloured incurved, the late quilled yellow, *Waratah*, the golden Indian, the double white Indian, the small yellow, the quilled pink, the semi-double pink, the semi-double quilled orange, and the pale purple.

Mr. Munroe, in a paper read before the Horticultural Society, in January, 1826, says, "Since the establishment of the Society in the year 1818, considerable attention has been paid to the culture of this plant, and the improvement is so great in its appearance, that it rivals those grown in its native country." He then gives his mode of treatment, and I find his directions differ in a very trifling degree from that generally practised now, both as regards compost and supplying liquid manures; and I have no doubt that in those days, had he possessed our present improved varieties, he would have grown them as fine. He speaks of Mr. Joseph Wells as the best grower

of that day, and recommends thinning the buds and watering with liquid manure, as practised at the present day. On account of their delicacy, the idea of growing them in open borders was abandoned, except against south walls, while we have improved varieties sufficiently acclimatized to flower freely in the open borders.

CULTIVATION IN THE BORDER.—The best mode of managing them in the border I have found to be the following:—Remove the plants after cutting them down, and put them in close together in a sheltered part of the garden, covering them with a framework of thin laths to guard them from frost. When grown sufficiently (say four inches long), take off the suckers, and put them in small pots, in light sandy loam, on a south border, in rows, protecting them from frost, and giving just enough water to keep them growing. If you can put them in cold frames, so much the better. Then dig up the border two feet deep, mixing a little rotten dung with a good dressing of fibrous turfy loam forked in eight or nine inches deep. Let it lie rough for the winter to sweeten. Plant out in the end of March, if the weather is favourable, giving to each plant a good handful of cocoa-nut fibre, which keeps the worms from it till it is well rooted. Plant the strongest suckers two feet apart, taking care the sparrows do not peck out the crown. Take off all side laterals as they throw out, till they show the second flower-bud. In July retain the three shoots thrown out from the crown, and take all side-shoots from the three branches, as before, till the flower-bud shows itself. Mulch the borders in August with cocoa-nut fibre, leaf-mould, or dung. Water with weak liquid manure from the 1st of August till they show their colours; and do not allow the plant to starve for want of plain water, as this throws them back, and when recovering they are apt to make a second growth, which prevents them blooming so early. Cover them over the first week in October, to guard against frost; and if you have a frame for putting on a glass, they will bloom much finer and cleaner than with canvas. All buds not showing colour in October are of little use, as they seldom come to maturity in November; and it is generally so cold that the work must all be done in September and October for border blooming. If against south walls, they will bloom much finer, as they are not so liable to the draughts as under canvas. If grown in eight-inch pots, they must be treated in the same manner as in borders, except that they require a stronger liquid manure, with good drainage; and if the water does not pass freely through, force through the mould a thin wire all over the pot to open a drainage.

CULTIVATION IN POTS.—The following is the method adopted by me in the culture of large varieties in five-inch pots from cuttings in June:—Last year I purchased all Mr. Salter's and Mr. Bird's new varieties. They were delivered to me in May, and I planted them out in the borders on receiving them, and allowed them to get naturalized to the smoky atmosphere for three weeks, which brought them up to the first week in June. I then took the tops off three inches long, and put the cuttings into 60-sized pots, one in each pot, draining the pot with a little cocoa-nut fibre,

and filling up with mould composed of half light loam and half-silver sand. I then plunged the pots in the front of a cucumber frame, new-milk warm, and shaded them for a fortnight, giving a little water occasionally. By the 1st of July they were well rooted. I then re-potted them into five-inch pots, drained with cocoa-nut fibre—the compost two-fourths fibrous maiden loam from Epping Forest, one-fourth rotten dung, and one-fourth decayed leaf-mould, pressing the mould firmly round the sides of the pot. I then put them in a cold frame for nine days, with a little air to harden them off, and then removed them to a sheltered sunny spot for three weeks, attending to the watering, and every evening syringing the foliage to wash off the fallen soot, and keep off insects.

At the end of three weeks I plunged them three parts down in the front of the border, making the hole much deeper than the pot, in order to obtain a free drainage. I then commenced giving a weak liquid manure, composed of horse, sheep, and cow dung, with a little guano, all mixed together in a tub; and this I continued to follow up till they showed the colour of the flower. As soon as they began to throw and show their side-shoots or laterals, I pricked them out, and continued to do so till they showed the flower-bud, which was in the end of August. When the bud was properly formed I took off the shoots on each side of the bud where the bud looked healthy and promising; but I was obliged to let several go on to the second shoot. These did not bloom quite so early, but all did very well. The average height was eighteen inches, with healthy foliage to the rim of the pot, and the blooms as perfect and nearly as large as those of the plants in the borders with unlimited space for growth. They bloomed in the first week in November, and attracted more notice than all the other blooms on account of the short habit and fine foliage. This system of growing large well-shaped blooms in small pots would give attractive specimens for exhibitions, which might afterwards be brought into use for decorating greenhouses or cottage-windows, and kept in bloom for a month, and is far preferable to cutting the blooms off to show, which afterward perish in a day or two. If the grower prefers quantity of bloom instead of very large single ones, the flower-bud should be taken off, and the stopped side-shoots allowed to remain; these will produce seven or eight blooms, but they will not flower so soon as the single bloom.

SEED AND SEEDLINGS.—*Chrysanthemums* may be easily seeded by cutting off the petals with a sharp pair of scissors close to the florets, taking care not to disturb the pollen, and keeping the plant in a dry place till the end of February, taking off the suckers as they grow up, and giving just sufficient water to keep the plant alive. In March take off the seed, and dry it for a week or so, and then put it in your coat pocket, and carry it about till quite dry. Then sow it in a hot-bed in two-thirds silver sand and one-third light loam, when it will vegetate in nine days. *Pompones* may be seeded and grown in the same manner, even in 60-sized pots (but the side-shoots should remain, as the greater the number of blooms in pompones, if perfect, the better they look), so as to have them as near as possible all one size. This mode I saw practised in Guernsey four

years back, where I went at Christmas to look after some new varieties. At the town of St. Peter's, which is built on a rock a considerable height above the sea, I found the chrysanthemum seeded freely, and that many of our newest and best varieties were raised in an alcove on the top of a rock, and about one hundred pots were crowded together in the dry, and all the late blooms of the season were full of seed half ripe. I saw the petals had been carefully cut off with a sharp pair of scissors close to the florets, avoiding disturbing the pollen; the pods were quite firm with the seed. I have practised the same mode myself with perfect success. Mr. Wyness, of Buckingham Palace, has also raised a great quantity of very good varieties. I am persuaded that any one can seed them in the green-houses or dry stoves in this country, if kept free from damp.

THE POMPONE CHRYSANTHEMUM.—About the year 1845, Mr. Fortune brought to the Society's gardens from Chusan a small semi-double reddish light brown chrysanthemum, which he called the Chusan Daisy, on account of finding it at Chusan. The Society propagated it, and sent it among its members. Thence it got to France, into the hands of M. Lebois, of Paris, an ardent lover of the chrysanthemum. He seeded it, the climate being better adapted for ripening the seed than the climate of this country. From the seed thus obtained, he raised a great many beautiful varieties of various colours, some of them exquisitely formed and perfectly symmetrical, and consequently the majority of our present collections came from this source, having been obtained by Mr. Salter, of Hammersmith. Still I find coloured plates of beautiful pompones in the Society's Transactions as far back as February, 1821, which I now exhibit.

The French gave it the name of pompone on account of its small, compact bloom, resembling the tuft, or *pompon*, in a soldier's cap.

The chrysanthemum, like the rose, holly, celery, and some other plants, is injured by having its leaves mined by caterpillars, which reside within the leaf, and which feed upon the parenchyma, or pulpy part of the leaf; for if the injured leaves are examined, the interior will be found quite destitute of pulp, and to contain one or several small green grubs, of different sizes, which have eaten all the interior, leaving only the two surfaces of the leaf entire, and those very thin. The grub, when feeding, may be observed through the transparent surface of the leaf using the two bent hooks, or mandibles, which it has the power to retract within, or protrude from the mouth like a pair of scrapers, and by the action of which the parenchyma is entirely destroyed, and brought into a state to pass into the mouth of the larva without difficulty. When the grubs are full-grown, they quit the leaves and descend into the earth, where they gradually shortly afterwards become pupa, and appear to lose all vitality, their form becoming shorter and oval, with the segments distinct, and terminated at each end by two obtuse points. In this state the insect remains buried in the ground until the following spring, when the warmth gives birth to the *imago* of one of the most beautiful of our species of two-winged flies, which, after throwing off its pupa skin, and bursting through the hardened pellicle of the larva, crawls

to the surface of the ground, and takes flight—generally during the months of July and August, but more or less throughout the summer; and there is no doubt but, like that of the house-fly, a succession of generations is produced through the whole season.

The insect whose caterpillar mines the chrysanthemum leaves, belongs to the dipterous or two-winged genus, *Tephritis* of Fabricius, and is the *Tephritis artemisia* of Curtis, and the *Trypeta artemisia* of Walker, in the "Entomological Magazine," No. xi., p. 84. The fly itself is about one-sixth of an inch long, and the expansion of the wings when fully extended is about one-third of an inch. It is of a pale yellowish buff colour, with a few black hairs at the sides of the thorax (breast); the wings are limpid, and slightly tinged with a yellowish colour, having several black spots of various shapes and sizes, and three uninterrupted bands across the body; but the general colour of the body varies in different specimens from a rusty brown to a shining black. The head is buff, with lateral hairs, and the wings are marked with several limpid spots of various forms and sizes. In some specimens the dark markings of the wings are varied with a pale copper colour, and these present a still more beautiful appearance—the under side of the body being of a paler yellow, with the abdomen and thorax highly polished.

To destroy this perfect fly seems impracticable, therefore the extermination of the insect must be looked to from the earliest time of their appearance in the caterpillar state. Picking off the infested leaves, or the crushing of the larva between the fingers and thumb without destroying the leaf, appears the best and only mode likely to prove successful, if adopted in the beginning of summer, as the destruction of one grub at that period will not only prevent the production of a numerous progeny, but will also ensure the better growth of the yet tender plant. The motions of the fly are also very peculiar, for when seated upon a leaf in the sunshine, their wings are carried partially extended, and at the same time partially elevated; and they have a sideling kind of motion which is possessed in common with but few other two-winged insects. It is generally found in the perfect state basking on the broad leaves of the laurel and similar-leaved plants, as well as those of the chrysanthemum.

A SELECTION OF HARDY HERBACEOUS PLANTS.



LIVING as I do in a remote part of the world, it was not until glancing over the September number of the FLORAL WORLD that I learned prizes had been offered in the "Gardener's Magazine" for selections of herbaceous plants. What these lists (which were sent in) contained, perhaps I shall never know, but if the list of fifty published in the

FLORAL WORLD, selected from the O'Shane hundred, really contains the *cream* of all the lists, I must say that the rejected ones must have been a very *skim-milk* lot indeed. It is now some years since I wrote anything on floral matters, but having been for a many years an admirer and a *cultivator* of herbaceous plants, perhaps you will "bear with me in my folly," if I say a few words about them, all respect for the gentlemen to whom the lists were submitted (one of them is my personal friend), but there must be a *standard of comparison* with herbaceous plants as with all other flowers. Most of the larger tribes of plants, such as phloxes and campanu-

las, have this standard in themselves. Thus The O'Shane says, "Phlox, all the *tall* herbaceous kinds, three and four feet." Allow me to state that a *three* feet phlox may be barely tolerated, if it has redeeming qualities, but a four-feet phlox should only be allowed to lift its head among shrubs, or at least very far back in the borders. *Countess of Home* was a phlox that stood A 1 with me for a long time as regards habit, etc., but it is now superseded, and a variety called *Mrs. Scott* is what I consider the model of a phlox, as a *herbaceous plant* (I am not speaking of the show table). Look at it and judge for yourselves, those that *have* it; and those that have not, should obtain it. Again, among campanulas I would place *C. coronata*, first, although very many of this tribe are truly beautiful. *Apropos* of campanulas, what does The O'Shane mean by "*Campanula rotundifolia*" red. I am ashamed to confess I have never seen a *red* campanula. *C. rotundifolia* is our native harebell; there are some fine varieties of it. One that I have called *pulchella* I have counted upwards of one thousand fully-expanded flowers on a medium-sized plant. I consider *Diclytra* (this is the proper way of spelling it) *spectabilis* a very beautiful plant, but I could always beat it with *Spirea Japonica*, which I consider the most lovely herbaceous plant known. I have known this plant take first prizes at the Liverpool show for five consecutive years. I have not time, and you have not space for me to describe it. I am very near crying out, "Oh, *Shame!* that *The O'Shane* does not mention this plant." I am thankful for the interest you take in my favourite old herbaceous plants. On looking over the list in the FLORAL WORLD, I found I have them nearly all. Some of them mentioned in your list I do not consider *herbaceous* plants, such as lilies and the bulbous irises however beautiful bulbs may be in the *herbaceous* border, they cannot be considered true *herbaceous* plants. Now, sir, do you know that I have the vanity of making a list myself. So I took a stroll round my little place, and dotted off a hundred, just as I came across them. I have not named one from the published list. I have not descended to the thousand and one little gems such as *Campanula pumila alba*, *Dianthus deltoides*, or *Phlox subulata*. These I consider as alpine, and may have a word to say about them hereafter. I have only mentioned *one* bulb, *Narcissus triandrus*, for its peerless beauty. *N. incomparabilis* is not at all to be compared with it. I have only introduced one plant for its foliage, namely, *Bocconia (Macleayana) cordata*—could not pass it by. But I enclose a list of one hundred hardy herbaceous plants, *species*, each with a character of its own, not a coarse plant in the lot, embracing every colour, form, and size of flower from the overwhelming splendour of "*Papaver involuerata maxima*" to the spirit-like airiness of *Gypsophylla paniculata*. People may smile at such old plants as *Trollius Europæus* being noticed, but what is there that beats it in its season? I take it for granted that the plants in the following list are well known, and shall not tell where they come from; but will just mention where they may be *had*, and as you wisely abstain from recommending dealers, allow me to recommend myself, by stating that I have the whole of them, with scores of others, and whoever wants them may obtain them at a cheap rate by applying to THOMAS WILLIAMS, Bath Lodge, Ormskirk.

LIST OF A HUNDRED HARDY HERBACEOUS PLANTS.

Dracocephalum argynense, *D. grandiflorum*; *Lobelia syphilitica*, *L. cardinalis*, *L. fulgens*, and varieties; *Papaver involuerata maxima* (flowers nearly one foot across); *P. croceum*, *P. orientale*; *Achillea ptarmica pleno*, *A. tomentosa*, *A. Ægyptiaca*, *A. millefolium roseum*; *Anemone pulsatilla*, *A. rivularis*; *Geranium Lancastriense*, *G. Lambertii*, *G. Iberica*, *G. Endresii*; *Gypsophylla paniculata*, *G. Stevenii*; *Geum coccinea grandiflora*; *Pyrethrum incarnatum* (Salter's varieties of this are splendid); *Potentilla Nepalensis*; *Centaurea ochroleuca*; *Delphinium grandiflorum* (splendid); *Siberian larkspur* (very choice); *Phyteuma orbiculare*; *Symphiandra pendula* (a charming campanulaceous plant, creamy yellow flowers; should be elevated on a few stones, etc., being a decided trailer); *Erodium hymenoides*, *E. Manescavii*; *Bocconia cordata*; *Pulmonaria virginica* (fine); *Coreopsis tenuifolia*; *Funkia Sieboldii*; *F. lanceolata*; *F. alba marginata*; *Gentiana hybrida*; *G. pneumonanthe*; *Sedum populifolium*; *S. Fabaria*; *Lupinus polyphyllus alba* (fine habit); *Dictamnus rubra*, *D. rubra alba*; *Dianthus plumosus*, *D. petraeus major*; *Campanula pulchella* (enormous flowers), *C. coronata* (very chaste), *C. nitida*, *C. Vidallii*, *C. glomerata plena*, *C. Trachelium plena*, *C. Trachelium alba*, *C. hosti*, *C. rotundifolia alba*, *C. pumila alba*, *C. mollis*; *Pentstemon pulchella* (varieties); *Chelone*

barbata, with white variety; *Genista sagittaria*; *Ranunculus aconitifolius*, *R. montana*; *Narcissus triandrus* (very beautiful); *Asphodelus ramosus*; *Digitalis aurea*; *Eriogonum fruticosum*; *Lilium liliago* (St. Bruno's Lily); *Orobanchaceae*, *O. speciosa*; *Yucca filamentosa*; *Cheiranthus Marshallii* (hybrid), *C. alpina*; *Convallaria multiflora* (Solomon's Seal); *Aconitum autumnale*, *A. versicolor*, *A. alba*; *Adonis vernalis*; *Iris acuta*; *Rudbeckia fulgida*; *Salvia argentea*; *Spiraea Japonica*, *S. venusta*, *S. aruncus*; *Heimerocallis flava*; *Echinops bannaticus*; *Trollius Europaeus*; *Saxifraga pyramidalis*; *Polygonum Sieboldii*; *Lychnis chalcedonica alba*; *Pentstemon ovatus* *P. argutus*, *P. digitalis*; *Veronica carnea*, *V. Caucasicus*; *Paeonia tenuifolia*; *Delphinium sinensis* (the double varieties of this are splendid); *Uvularia puberula*, *U. grandiflora*, *U. perfoliata*; *Doronicum Caucasicum*; *Platycodon grandiflorus* (a gem); *Mimulus cardinalis* (varieties); *Aquilegia caryophylla* (handsome); *Linum patrenne* (varieties); *Melissa grandiflora*; *Statice Gmelini*; *Stachys aurantiaca*; *Cerastium tomentosum*; *Monarda didyma*, *M. Russelliana*; *Physostegia speciosa*.

REMARKS ON THE FOREGOING SELECTION.

Before I make a few remarks on the above selection, I must offer my best thanks to Mr. Williams, for the trouble he has taken to oblige our readers. As to The O'Shane's list, part of which was quoted from the "Gardener's Magazine" of June 23, 1866, it contains all the good things that may be grown in English gardens without any special preparation of soil, or any fear as to their hardiness. In proof that it consists of good things only, I have added the names of *all* the plants, so that those who wish to select for themselves may do so. The description of *Campanula rotundifolia* as "red," was a typographical error; the original list is correct in every particular.

Mr. Williams's list is a good one, but no two lists of such things would agree. Thus he gives us *Achillea ptarmica*, which is a coarse though handsome plant. He gives *Spiraea Japonica*, which is indeed a gem (The O'Shane did not forget it), but it is not everywhere so hardy as to be of any use. I know of many places where it is never seen in full beauty, and I am assured by Mr. Chitty and some other of our best herbaceous men in these parts, that it is better grown as I do it than elsewhere, and the secret of my success is that I treat it as a frame plant. I suppose by *Papaver involucreta* Mr. Williams means *Papaver bracteatum*. The name he uses is not to be found in Don, Sweet, or Lindley. The *Lobelias* Mr. Williams names are frame plants. Surely he does not keep them all the winter in the "hardy herbaceous border." Their splendour cannot be denied, the pity is that very few people know anything about them; there is so much "bedding" madness. The plant Mr. Williams calls *Symphandra pendula* is, I suppose, the one usually catalogued as *Campanula pendula*. To spell *Dielytra* as *Dielytra* is allowable, but our friend must not be too positive in asserting that his method alone is right. If the word comes from a root signifying "two shielded," then the first method with *e* is right, as any one will believe who has got so far in entomology as to understand what is meant by the *elytra* of a beetle. If the word comes from a root signifying two spurs, then the *e* is correct. Modern writers of authority are agreed that the first derivation is the one to be accepted. Our friend goes a little aside to insert *Yucca filamentosa*, but forgets *Gynierium argenteum*. If a *Yucca*, why not a grass? The fact is, it is impossible to group all the good things in a list of one hundred, and the omission from Mr. Williams's list of *Alyssum saxatile*, affords a proper excuse for turning the laugh against himself, and inviting him to join us in a mutual confession of fallibility.

S. H.

THE O'SHANE'S LIST OF ONE HUNDRED HARDY HERBACEOUS PLANTS.

(For the descriptions, we must refer our readers to the "Gardener's Magazine," June 23, 1866.)

Adonis vernalis; *Anemone apennina*, *A. japonica* (and varieties), *A. coronaria* (in great variety); *Aquilegia alpina*; *Delphinium* (in splendid variety); *Helleborus niger*; *Paeonia* (in rich variety); *Ranunculus acris-pleno*; *Epimedium pinnatum-elegans*; *Dielytra spectabilis*; *Saponaria ocymoides*; *Baptisia australis*; *Coronilla varia*; *Galega officinalis* (and its fine white variety); *Lathyrus grandiflorus*, *L. latifolius* (and pure white variety); *Orobanchaceae* (and varieties); *Lupinus polyphyllus*; *Epilobium angustifolium* and *a. album*; *Achillea millefolium*

roseum (the true deeply coloured variety), *A. Eupatorium*, *A. aurea*; *Aster versicolor*, *A. bessarabicus*, *A. laevis*, *A. elegans*, *A. ericoides*, *A. amellus*, *A. nova Angliæ*; *Echinops ritro*; *Pyrethrum roseum* (single and double in variety); *Phlox* (all the tall herbaceous varieties); *Campanula carpatica* (white varieties); *C. persicifolia* (and varieties), *C. grandis*, *C. macrantha*, *C. pyramidalis*, *C. rotundifolia*; *Statice latifolia*; *Papaver orientale*; *Trillium grandiflora*; *Czackia liliastrium*; *Gentiana asclepiadea*; *Iris pallida*, *I. Germanica* (in great variety), *I. Florentina*, *I. sambucina*, *I. variegata*, *I. pumila* (in variety), *I. subbiflora*, *I. ochroleuca*, *I. flavescens*, *I. Jacquesiana*, *I. amœna*; *Lilium excelsum*, *L. longiflorum*, *L. chalcedonicum*; *Tritoma glaucescens*, *T. grandis*, *T. uvaria* (and all other good varieties or species); *Fritillaria meleagris* (and its beautiful white varieties, known to some as *F. præcox*); *Narcissus poeticus*, *N. odoratus*, *N. major* (and varieties or sub-species); *Iberis Gibraltarica* (syn. *corraefolia*), *I. saxatilis*; *Arabis alba*; *Alyssum saxatile*; *Aubrieta grandiflora*; *Erigeron speciosus*; *Centranthus ruber* (and white variety); *Monarda didyma*; *Hesperis matronalis* pl. (in variety); *Cheiranthus Cheiri* (fine old double varieties), *C. alpinus*; *Spiræa Japonica*; *Potentilla* (in fine variety); *Trollius napellifolius*; *Pentstemon procerus*, *P. gentianoides* or *Hartwegii* (all good varieties of); *Polygonum Sieboldii*; *Veronica corymbosa*, *V. amethystina*; *Erodium Manescavii*; *Tradescantia virginica* (and its delicately-tinted varieties); *Lythrum roseum superbum*; *Hemerocallis flava*; *Anemone fulgens*; *Pyrethrum uliginosum*; *Trollius Europæus*; *Phlomis pungens*; *Armeria cephalotes*; *Geum Chilense*; *Physostegia virginiana*; *Parnica vulgaris* fl. pl.; *Thermopsis fabacea*; *Symphytum Caucasianum*; *Eryngium amethystinum*; *Dodecatheon Meadia* (and varieties).

KEEPING OUT FROST—TEMPERATURE OF THE SOIL.



FEW words on the principles which the gardener should keep in mind in his endeavours to keep out frost may be seasonable just now, for it may be questioned if gardeners have invariably a clear view of the object to be gained, and the best means of securing it; and those among our readers who are familiar with the theory of the subject will not mind seeing a few common-place facts set forth for the benefit of those who have yet something to learn on the subject. The leading principle of all protective measures may be stated to be not so much keeping out frost as keeping in heat. If any one will take the trouble to examine a bed of snow when it has lain upon the earth a day or two, it will be found that, however hard frozen on the surface, it is actually thawing where it rests upon the earth. If the snow be very thin, this may not happen to be the case, because the cold air may penetrate through it, and cause it to freeze to the soil; but when deep snow has laid some time, it invariably begins to thaw next the soil, however hard it may freeze at the surface exposed to the atmosphere. Another lesson of value may be gained just now by dipping some water from a well; it will come up comparatively warm, and its temperature probably 40° to 50°, according to the depth and the soil. The inference from these two observations is obvious enough: the earth is a reservoir of heat, and this heat it is the gardener's business to make the most of, and all protective measures should have for their object to prevent its escape. This earth-heat is a matter of some importance to the life of plants when its amount is considered. This heat is constantly rising to the surface; hence, if we pile up a mass of material of any kind, and leave it for some days, however hard it may get frozen, it will be found that when removed the earth is quite warm on the spot it has covered, a simple consequence of the heat having been confined. The heat of the earth varies much near the surface as the seasons revolve, but the deeper we descend the less is the variation. It is especially worthy of notice that the soil is such a bad conductor of heat that even at very trifling depths the variations do not keep pace with the changes of atmospheric temperature, and this leads to very interesting results. By the elaborate experiments of Professor Forbes it was shown that at three feet the greatest cold does not occur till February; at six feet, not till March; at twelve feet, in April; and at twenty-four feet, in July. These facts explain why water from deep wells is (as people say) cold in summer and warm in winter. At

a depth of two feet the temperature usually rises considerably from the middle of April to the middle of July, and is in some seasons subject to many fluctuations ; but during autumn and the early part of winter much of the heat absorbed during summer is retained by the crust, and plants exposed to severe frosts are still warm at their roots, and the atmosphere is so far affected by the radiation of heat from the earth that early frosts are considerably modified in their effects.

Now the grand object should be to get as much of this heat as possible, and to *keep it*. For this purpose we use frames, the glass coverings of which obstruct the radiation of the earth's heat, and preserve the plants from the severities of the atmospheric temperature. When frost comes we lay on the frames such things as mats, straw, etc., and these still further obstruct the radiation, and prevent the cold winds gaining access to the frames. Everything that can be used to counteract radiation may be turned to account, but there is a good and a bad way of doing it. It so happens—and every gardener should keep the fact in mind—that the atmosphere is a tolerably good non-conductor, and a body of air shut up close cools very slowly. It is also to be borne in mind that water is a good conductor of heat, and hence cools quickly, especially at the surface. Suppose we really want (which we never do) to cool down the atmosphere of a frame without taking off the light, the best way to do it would be to throw water on the glass ; the evaporation from this during wind or sunshine would probably soon render the air inside the frame colder than the air without, and at night the frost would act upon the wet glass and carry on the cooling process, and if mischief were intended it would be effectual. The rationale of this process is that the heat from the soil and atmosphere of the frame is conducted outwards and dissipated. We learn another lesson from this, namely, to keep the glass, the mats, the straw, and whatever else is used for covering, *as dry as possible*, and at any time when they are unavoidably wetted they should be taken off and dried at the first opportunity. But we have not yet done. The air is a good non-conductor ; hence, if a mat or tarpaulin can be stretched over a frame and fixed down close at the sides, and the superficies kept at a few inches from the glass—as by laths for instance—there will be a stratum of air between the tarpaulin and the glass, and this will be as good as another thickness, or, to use a homely phrase, will make the frame a coat warmer. In very cold countries, travellers prefer cloaks to coats ; loose garments are found to be warmer than tight ones. The reason is that they enclose a considerable body of air, and this being a non-conductor adds to the comfort of the garment. Now, in covering up, loose litter is found very effectual, and, *ceteris paribus*, the looser it is the better. A great heap of dry straw thrown on over a mat will do wonders to keep out frost, because the straw has entangled in it a vast amount of air, which renders it non-conducting. Any light dry material, such as waste wool, clippings of hedges, withered tops of chrysanthemums, etc., may be made use of in the frame-ground during hard frost.

A few more hints may be of service, especially to young gardeners. During frost every plant in a pot—no matter if the hardiest plant known—should have its roots protected. If exposed so that the roots get frozen, death is likely to be the consequence. One of the best materials in which to plunge potted plants, whether indoors or out, is the now famous cocoa-nut fibre refuse. This is never very wet, and never quite dry, and is such a non-conductor that the frost rarely penetrates more than a few inches below the surface, and it may be heaped round the collar of a plant that needs extra protection without any fear of harm, provided it is removed on the return of mild weather.

Lastly, plants exposed to very low temperatures need not of necessity be exposed to light. We have known pits full of geraniums to be buried under heaps of litter for three weeks in complete darkness without taking the least harm. Of course, on the return of mild weather, light should be admitted as soon as possible. In case of plants getting badly frosted, let them thaw slowly, and in the dark. Gardeners sometimes make a rush at the fire when they find frost in the house, and by getting up too fierce a heat, do more harm than if they had left things alone. Beware of extremes, and aim at making fires burn steady and continuously, rather than at a pace that is likely to roast the inmates of the house.

NEW PLANTS.



CÆLOGYNE CORRUGATA, *Wrinkle-bulbed Caelogyne* (Bot. Mag., t. 5601).—Orchidææ. This pretty species was introduced from India in 1863, and is now pretty generally distributed. It takes its name from the wrinkled appearance of the pseudo-bulbs, which are ovate and two-leaved. The leaves are a span long; racemes three to six-flowered; sepals and petals nearly equal, pure white; lip three-lobed, yellow, marked with orange streaks.

FREMONTIA CALIFORNICA, *Californian Fremontia* (Bot. Mag., t. 5591).—Malvaceæ. A singular and beautiful hardy Californian shrub, imported by Messrs. Veitch. It attains a length of ten feet, and resembles a fig-tree; the flowers are numerous, golden yellow, two to two and a half inches diameter.

COTYLEDON FASCICULARIS, *Bundle-flowered Cotyledon* (Bot. Mag., t. 5602).—Crassulaceæ. A beautiful South African succulent, introduced by W. Wilson Saunders, Esq. The whole plant is glaucous, leaves two to three inches long, and one-third of an inch in thickness; flower-stalk ten to twenty inches high; flowers pendulous, an inch long, campanulate; colours yellow and red.

GLYPTOSTROBUS PENDULUS, *Pendulous Deciduous Cypress* (Bot. Mag., t. 5603).—Conifereæ. This tree bears a close resemblance to *Taxodium distichum*, and, like that plant, has pendulous spikes of male cones, with one or few female cones at the base of the spike, and sheds its ultimate branches annually. But it differs in foliage not being distichous, in the scales of the cone not being peltate; and the habit is very remarkable, owing to the great slenderness of the twisted stem.

HELIPTERUM COTULA, *Cotula-flowered Everlasting* (Bot. Mag., t. 5604).—Compositæ. A beautiful West Australian everlasting, introduced by Mr. W. Thompson, of Tavern Street, Ipswich. The plant is of slender habit, with filiform leaves, and heads of two colours, yellow and white.

PRIMULA INTERMEDIA, *Intermediate Primrose* (L' *Illust. Hort.*, t. 482).—Primulaceæ. A beautiful primula, allied by its leafage to *P. auricula*, and by its flowers to *P. cortusoides*. The flowers are of a rosy purple colour, produced in fine large trusses. The plant is hardy, but will probably flower better if protected in a frame during winter.

BOLBOPHYLLUM RETICULATUM, *Reticulated-leaved Bolbophyllum* (Bot. Mag., t. 5605).—Orchidææ. A singular and beautiful orchid, and the finest of the genus. It was discovered by Thomas Lobb, in Borneo, and introduced by Messrs. Veitch. The pseudo-bulbs are solitary, ovoid, about an inch long, bearing one leaf three to five inches long, which is pale green, elegantly covered with dark green veins; flower one and a quarter inch in diameter, internally white, with stripes of clear red



FREMONTIA CALIFORNICA.



PRIMULA INTERMEDIA.

purple in the sepals and petals internally.

MUSSCHIA WOOLLASTONI, *Mr. Woollaston's Musschia* (*Bot. Mag.*, t. 5606).—*Campanulaceæ*. A beautiful plant, introduced from Madeira into Kew, twelve years ago, where it has flowered annually in a cool greenhouse. It is a large-leaved undershrub, the flowers produced in an erect panicle; they are large, yellow, the stigmas very large, and forming a kind of radiating star in the centre of the flower.

ELAIS GUINEENSIS, *the Cocoa-palm of Guinea* (*L'Illustr. Hort.*, t. 487).—*Phœnicaceæ*. This splendid palm attains to a considerable altitude in its native country, where it is much valued on account of the large yield of oil of its fruits. The appearance of the plant is extremely elegant, the head having the appearance of a gigantic plume of dark green feathers.

CAMELLIA MISTRESS DOMBRAIN.—A refined and distinct flower, of medium size, the petals most elegantly imbricated; colour delicate blush, with pale lilac shades. Raised by M. Van Eckkaute, of Leedberg, and to be sent out by M. A. Verschaffelt, of Ghent.

JACARANDA DIGITALIFLORA ALBIFLORA, *White-flowered Fox-glove Jacaranda* (*L'Illustr. Hort.*, t. 489).—*Bignoniaceæ*. This fine variety has flowers of the same size and form as the species, but differing in being pure white, with canary colour in the throat. We do not often see the *Jacarandas* in bloom in English gardens, but they are well worth the little extra care required to bring them into flower. It is not until the plants acquire age, however, that flowers are to be expected.

ALNUS GLUTINOSA V. AUREA, *Golden-leaved Alder* (*L'Illustr. Hort.*, t. 490).—*Betulaceæ*. A fine variety of one of our commonest forest trees. The leaves are richly barred with diagonal lines of variegation, varying from creamy-amber to deep rich orange, occasionally passing into pale red. There is a due proportion of green in the leaf, but being, also, in diagonal bars alternately with the bars of yellow, it adds greatly to its beauty. This fine subject was raised by Madame Ve. Louis Vervaeke, of Ledeborg-le-Gand. It has been exhibited with other equally-beautiful subjects of the same class by Messrs. Paul and Son, of the Cheshunt Nurseries.

RHODODENDRON ARCHIDUC ETIENNE.—A magnificent hybrid. The flowers are large, and are produced in round trusses of great size. They are creamy-white, the three upper petals heavily spotted with rich deep brown, passing into red. The foliage is deep green, and glossy. It is figured in *L'Illustr. Hort.*, t. 492.

POMPONE CHRYSANTHEMUMS.—The following are figured in *L'Illustr. Hort.*, t. 492:—*Dona carmen*, a neat liliputian, formed like a ranunculus, very neat, snow-white. *Soliman*, a very small, button-like liliputian, bright red and yellow, very pretty. *Aminta*, flowers as large as a crown-piece, with notched florets, scarlet, with yellow stripes in the centre. *Damietta*, a small, rather flat, daisy-like flower, the colour puce, shaded with lavender, the centre whitish; very distinct. *Telitza*, a large liliputian, the flower the size of a florin, rather flat in the broad, notched florets, colour mixed chocolate and purple, with white tips. *Lucinda*, a curious starry flower the size of a florin, mixed yellow and white. *Rosabelle*, a rather flat flower of the size of a crown-piece, the florets broad and notched, colour soft pinky rose, shading to white in the centre.

THE GARDEN GUIDE FOR NOVEMBER.

FLOWERS OF THE MONTH.—*Greenhouse*: *Acacia corymbosa*, *A. lophantha*, *Cytisus Atleeana*, *C. racemosus*, *Coronilla glauca*, *Correa pulchella*, *Tropæolum Lobbianum*, *T. Ball of Fire*, *T. Lilly Schmidt*, *Lambertia rosea*, *Salvia fulgens*, *Chimonanthus fragrans*, *C. sinense*, *Jasminum nudiflorum*, *Globulea hispida*, *Echeveria retusa*, *Citriobatus multiflorus*, *Myoporum parvifolium*, *Epacris nivalis*, *E. purpurascens*, *E. miniata*, *Tree Violets*, *Tree Carnations*, *Camellias*.—*Ericas*: *Distans*, *Gracilis*, *Autumnalis*, *Templeana*, *Pilularis*, *Leeana*, *Cubica*, *Acuminata*, *Princeps*, *Solandriana*, *Rubens*, *Viridiflora*, *Aitoniana*, *Caffra*, *Muscoides*, *Verticillata*, *Banksia*, *Cruenta*, *Droseroides*, *Rupestris*, *Taxifolia*, *Aspera*, *Pulchella*, *Hyemalis*, *Florida*, *Ralliformis*, *Niellii*, *Syndriana*, *McNabiana*, *Glandulosa*, *Lambertiana*, *Easonii*.—*Garden*: *Aster Nova Zelandica*, *A. dracunculoides*, *A. concinnus*, *A. concolor*, *A. Sikkimensis*, *A. laxus*, *A. salicifolius*, *A. grandiflorus*, *Caltha sagit-*

tata, *Sideritis spinosa*, *Aconitum autumnalis*, *Artemisia pontica*, *Armeria vulgaris* coccinea, *Artemisia lactiflora*, *A. cœrulescens*, *Baccharia dioscoroides*, *Barbarea prœcox*, *Bidens procera*, *Cineraria auriculata*, *Solidago lævigata*, *S. recurvata*, *S. glomerata*, *S. tenuifolia*, *S. graminifolia*, *Pyrola media*, *Liatris elegans*, *Lobelia glandulosa*, violets, primroses, and a few auriculas flower during mild weather.—*Orchids*: *Cypripedium Farrieanum*, *Lælia superbiens*, *Odontoglossum Uro Skinneri*, *Sophronites grandiflora*, *Læliopsis Domingensis*, *Stanhoepa oculata*, *Cattleya maxima*, *Barkeria Skinneri*, *Lycaste Deppii*, *Dendrobium discolor*, *D. veratrifolium*, *Angræcum bilobum*, *A. sesquipedale*, *Phalænopsis amabilis longifolia*, *P. rotundifolia*, *Oncidium reflexum*, *Dendrobium moniliforme*, *D. majus*, *Calauthe Veitchii*, *Oncidium Forbesii*, *Lælia albida superba*, *Grammatophyllum speciosum*, *G. Ellisi*, *Dendrobium Lowii*, *Goodyera discolor*, *G. Dominii*, *G. pubescens*, *Miltonia Karwinski*, *Sophronites cernua*, *S. violacea*.

GARDEN WORK.

Kitchen Garden.—Everything in the way of work must now depend on the weather. If the ground is dry, let every vacant plot be trenched or deeply dug, and laid up in ridges. On well-drained lands a few rows of the earliest peas may be sown; the best for the purpose being *Sutton's Ringleader*, *Dickson's First*, and *Sangster's No. 1*. These will come into use in the order of their names if they survive the winter. A small breadth of *Early Mazagan* and *Long-pod* beans may also be sown if an early dish next season is desirable. If the autumn-planted broccolis have not been heeled, then it must be done at once. Dig a trench on the north side of each row, and gently heave them over with their heads northward, and lay the soil on the south side on their stems up to the lowest leaves. If they are in a rampant state of growth, lift them and plant them against ridges with their heads to the north. On warm, dry soils this is a good time to plant potatoes. Asparagus bed not dressed up must be made clean, and have three inches of fat manure laid on. Take up sea-kale roots for forcing, remove the leaves, and pack the roots in sand, or any material ready to hand, in a dry shed till wanted. The act of lifting will cause them to ripen their crowns perfectly, which will cause them to force better. During fine weather plant out collards and lettuces from the seed-beds. Any roots not yet stored, must be got up before the frost catches them.

Fruit Garden.—All kinds of hardy fruits may now be planted. Early planting is of great importance, especially if the trees have fruit spurs, as if they make new roots quickly they will bear good crops next season. Finish pruning and training wall trees. Repot orchard-house trees, or if to remain in the same pots, remove the top soil and dress with good loam and manure.

Flower Garden.—Plant roses, hardy herbaceous plants, bulbs of all kinds. It is a good time to make box edgings and improve walks, as the hands are not much pressed with work. Take up roots of Dahlias, and Marvel of Peru, and store in a cool, dry place.

Greenhouse and Store.—Beware of damp, and use fire during close, muggy weather, to cause a circulation of air in the house. Frequent removal of dead leaves and quick removal of all litter, are good preventives of mildew. Plants to be forced must be prepared by placing them in the greenhouse for a time. Plants in flower must have sufficient warmth. Orchids at rest must not go dry, but water must be given sparingly. It is an excellent plan to cover outside vine borders, especially if the vines are to be forced; but all early vineries should have inside borders, that the vines may be fully under control, root and branch.

NEWS OF THE MONTH.

THE UNITED HORTICULTURAL SOCIETY having obtained a grant of the Guildhall for a flower and fruit show simultaneously with the Albert Orphan Asylum, the promoters of which intend to hold a bazaar, the two societies have amalgamated in order to help each other, as philanthropy is their common object. The dates fixed for the exhibition are the 13th, 14th, and 15th of November, when the two societies

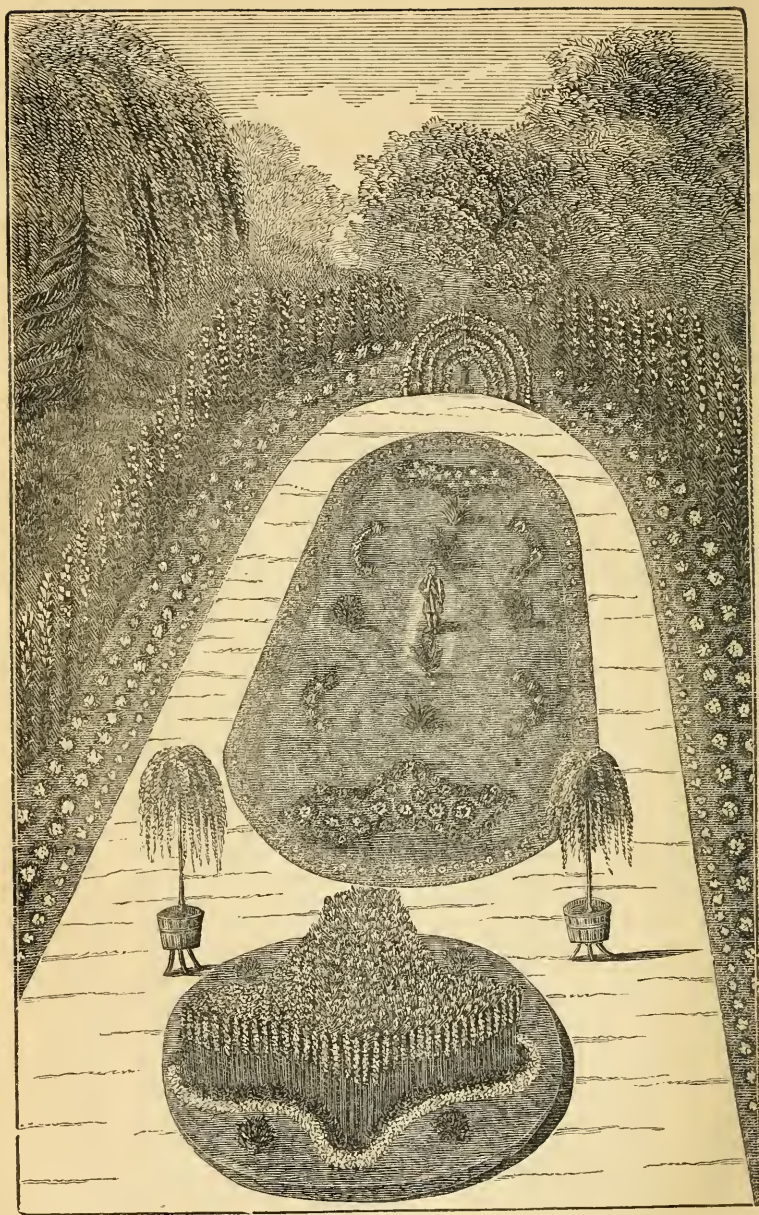
will combine their efforts. The result will be a combination of flower and fruit show and bazaar, the hall and the several chambers being severally apportioned to the two objects—namely, groups of plants, flowers, and fruits, interspersed with a few elegant stalls for the sale of fancy articles. The public will be admitted to the whole by one payment, which will probably be half-a-crown each the first day, and a shilling each for the two subsequent days. There will be no restriction of space for the horticultural display, as several of the most beautiful chambers have been granted by the Corporation for the purpose, and it is anticipated that this will be even more attractive than the splendid show of last year.

At the usual monthly meeting held on October 8, Mr. Marshall, the president, in the chair, some interesting subjects were exhibited. Mr. Wilson, the president's gardener, brought a beautiful example of *Odontoglossum Cervantesi* roseum, which has wrinkled pseudo-bulbs, and flowers with equal segments, the colours of the flowers a warm shade of rose. This was considered a valuable acquisition, but no certificate was awarded it. From the same a fine variety of *Odontoglossum grande*, the flowers larger and richer in colour than the ordinary type. Also a pretty *Trichopilia* with white flowers. Mr. Groom, of Ipswich, presented portraits of two new English-raised roses—namely, Mrs. Ward, a robust-habited variety with large globular flowers, and shell petals in the way of *Souvenir de la Reine d'Angleterre*, but deeper in colour and with more symmetry; and Mrs. John Berners, a neat, medium-sized flower, beautifully put together, the colour rich rose with deep red shades. Both these are from the seed-bed of Mr. Ward, the raiser of John Hopper. Mr. Hibberd contributed a specimen of *Sedum Sieboldii*, a fine old hardy plant which requires to be grown in a cool greenhouse to bring out its beauty. The plant measured over nine feet in circumference, and had ninety-six umbels of rosy-pink flowers. From the same, some samples of beets; the best for proportion, in fact the handsomest, was Dewar's Short-top, but this was of a light colour when cut. The Pine-apple beet was a neat small root of excellent colour, and Lindley's beet was good. Wheeler's extra fine beet was the ugliest, and especially ill-formed at the crown, making too much head and too little root.

TO CORRESPONDENTS.

VARIEGATED GERANIUMS FOR EXHIBITION.—*Marlborough*.—As you wish to exhibit, you had better procure from the nurserymen good-sized plants (say in 48-sized pots), that have been grown a season, and cut down; select them of uniform size, as under favourable treatment their growth will be pretty uniform. When you have got them, pot them, if they require it, into a mixture of equal parts leaf-mould, peat, and light loam, and enough silver sand to render the soil free and open. Be particular about the drainage, as this class of plants are very impatient of stagnant moisture. When potted, put them on a shelf in the greenhouse, quite close to the glass; in this position they will be making growth all the winter. The pots in which you place them for their final shift, must be regulated by the rules of the society in connection with which you exhibit. They will require this final shift about the middle of March. This time use pounded bones for drainage, the plants will feed upon them all the summer, and will be very much assisted by them in the development of their beautiful tintings. As the plants progress in growth, tie the branches out regularly, and by the middle of summer you will have plants worth looking at.

DISEASED ROSE-LEAVES.—*G. R. S.*—Your rose-leaves look as though they had been taken from the weakest shoots of plants that have grown vigorously, and taken into the vigorous shoots all the nutriment the roots could supply, leaving the weaker shoots in a feeble state, ready to succumb, by the attacks of insects, mildew, or any other evil influence with which they come in contact. If this is the case with your roses, remove at once all the weak shoots, that so all the vigour of the plants may be given to those strong shoots that will give you good flowers next year. Great numbers of roses, grown under the most favourable conditions, have this season lost their leaves in consequence of the continued dull, damp, sunless weather of the last two months. As a proof, roses grown under glass, and comparatively dry, retain their foliage in full vigour.



BIRD'S-EYE VIEW OF THE GARDEN OF JAMES CRUTE, ESQ., TUFNEL PARK.

THE FLORAL WORLD

AND

GARDEN GUIDE.

DECEMBER, 1866.

A NOVEL AND ELEGANT TOWN GARDEN.



WE are bound to accept the axiom that there is nothing new under the sun, yet when things appear new *to us*, and at the same time worthy of admiration, surprise is added to the number of our enjoyments; and with every enjoyment of a novelty there is combined a sense of edification, which affords satisfaction when surprise is past. I beg the reader to accept the foregoing fragment of philosophy as the intended total of my moralizings over the pictures now presented of the garden of my much-loved friend, James Crute, Esq., of Holloway. This garden is of small extent, and is the breathing space allotted to a comfortable villa, where my friend resides. I had been, during the past summer, exploring the wonders of a great garden where the plant-houses cover about four acres of land, and immediately on my return home, I went to see Mr. Crute, and was much more astonished and delighted at the beauty of his little garden, than with all the magnificence I had but just then left. I had been familiar with the garden aforetime, but I had not seen it since it had undergone certain alterations, and I remembered that those alterations had been designed and carried into effect by my friend during a season of sickness, which compelled him to neglect his city business, and for a season almost completely prostrated his powers. I was curious, therefore, to see the result of ingenuity exercised under such peculiar circumstances, and I repeat that it was with astonishment and delight that I found the result greatly to exceed my expectations.

Let us now to business. This garden is one of the many thousands that abound in the suburbs of London. An oblong slip, walled in right and left, and, fortunately, with a pleasing prospect beyond, over grounds well timbered. Nevertheless, if it had not this advantage of trees beyond the boundary, the hands that designed the beautiful scene now represented would have hit upon some method of obviating the discordance of a look out upon flat walls and angular chimneys, which is the sort of prospect common to London gardens. The dimensions of the portion dressed are shown on the ground plan, the length being eighty feet, and the breadth thirty-six feet. If we call in a landscape gardener to such a plot,

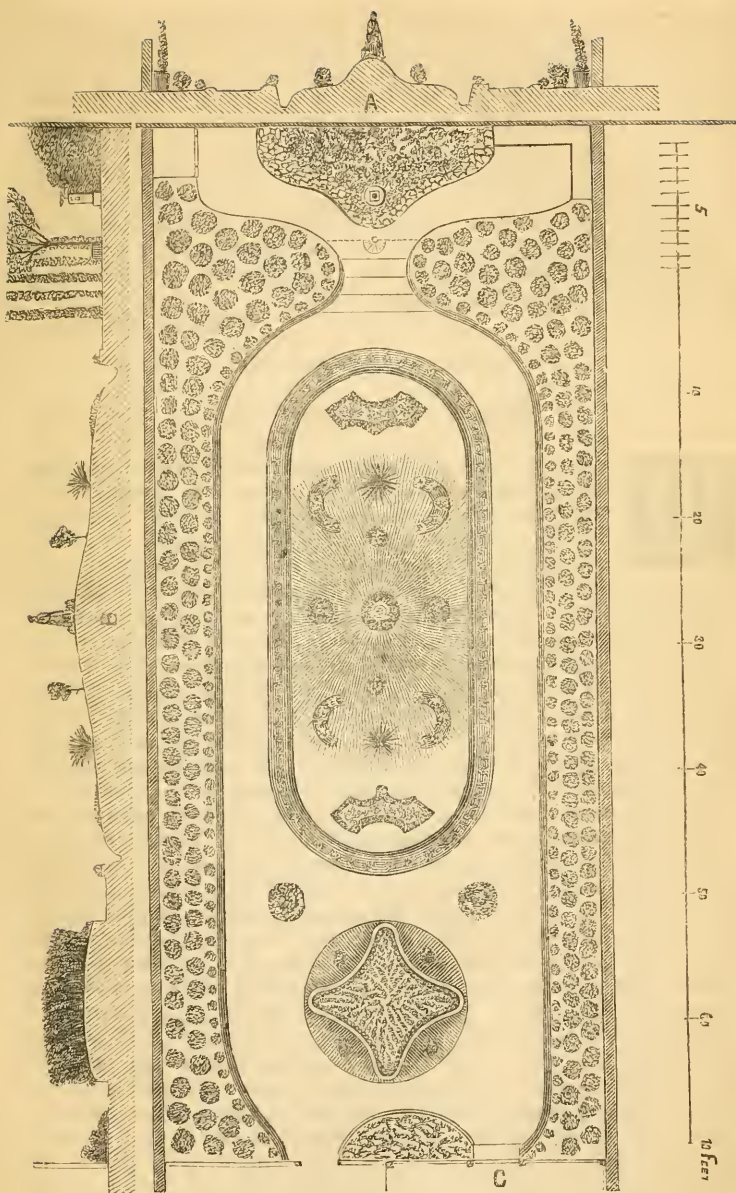
there is a chance in the first case that he will sneer at it. If we get over that, there is next a chance that he will attempt a winding walk and a series of clumps in the English style, for which there cannot be sufficient space; or that he will take an Italian fit, and run up a long bill of costs for encaustic tiles, statuary, stone steps, balustrades, and other uneatable gingerbread. This was a very pretty garden before it underwent its last modifications. It consisted of just such a plot of turf as is now represented, but the turf was *flat*. The borders were all aslope, and displayed a very rich combination of bedding plants. The great merit of the present scheme, and indeed its one peculiar and original feature, is that the large grass plot in the centre, and the circular clump near the windows of the house, are moulded to a series of elegant waving superficies. Perhaps I shall be better understood if I say that the surfaces of each of the two principal features are worked into elegant and *symmetrical undulations*.

It is impossible to convey a just idea of the soft, pleasing, and highly artistic effect, which the artist has endeavoured to represent in the accompanying pictures. Nevertheless, all that a skilful pencil can do has been done, and I beg the reader to turn to the ground plan and observe the sectional lines A and B, for further explanation.

The section A is drawn through the centre of the garden *across* from right to left. It shows the boundary walls, the borders, the walks, the central compartment with the statue, and gives the exact amount of each depression and elevation.

The section B is drawn through the centre of the garden *lengthwise*. It shows the small border in front of the conservatory, the circular clump near the windows, the walk, the elevations and depressions of the central compartment, the statues, the hollyhocks, and the shrubs that fill up the extreme rear beyond the arch, shown in the bird's-eye view.

Between the dwelling-house and garden is a very pretty conservatory, entered from a sitting-room, and through this usually is the way to the garden at the point C. In front of the conservatory wall is the semicircular clump shown in the ground plan; this is simply a border filled with a mixture of hardy herbaceous and bedding plants. The large circular compartment which we arrive at next, consists of a groundwork of undulating grass, with four small shrubs, where the depressions are deepest, and a great diamond-shaped clump of gladioli and cannas. When all were in bloom together, this was a splendid feature, but the noble foliage of cannas is always ornamental, and this therefore is a good summer bed. The large central compartment is a grass plot undulated. It has around it a sharp rim, which was planted last summer with variegated mint and blue lobelia. On the inner side this rim is cut down about six inches, and then the turf swells up gradually to the centre, as is most correctly shown in the section B. The embellishments of the plot are six flower-beds and some very pretty plants, the latter being yuccas, small Irish yews, and junipers, all small, neat, and appropriate. The statue in the centre is really much more appro-



GROUND PLAN AND CROSS SECTIONS OF THE GARDEN OF JAMES CRUTE, ESQ.,
TUFNEL PARK.

prate to the scene than hundreds of statues I have seen in gardens, for the grass rises to receive it and to display it. The borders are appropriated to bedding plants in the ribbon style, and in the rear of the ribbon on each side Mr. Crute keeps his specimen chrysanthemums, as shown in the section A within the wall, right and left. I abstain from enumerating the bedding plants employed in the decoration of this garden, because I wish to be as brief as possible, and to direct attention to the scheme, which is original, ingenious, elegant, and appropriate to a space so limited; whereas the bedding plants admit of endless variety, and will probably differ every year so long as Mr. Crute shall enjoy this little paradise, and that it may be long is the prayer of his faithful friend,

SHIRLEY HIBBERD.

USEFUL SHRUBBERIES.



AM not about to begin a case of grievance, in order to declaim against it; or conjure up a windmill, in order to enjoy an imaginary fight. I shall not say, as is the custom with your horticultural writers—a priggish lot, though I say it who am of them—that the shrubberies are all filled with rubbish, and this essay is to put that matter to rights. No; I shall be content to say that, as good fruits are everywhere appreciated, and as beauty is a desideratum of the garden, the shrubberies might all be constituted of useful fruit trees, instead of lilacs, snowberries, laurels, and the rest of the ordinary stuff which I grant is not to be despised, yet makes no direct return of a commercial kind. Let us just consider the case, and suppose a shrubbery to be, in fact, an orchard. It would be necessary, in order to preserve the *ornamental* feature proper to a shrubbery, to avoid the formal system in which an orchard proper is planted, and select trees best adapted for beauty of effect. Old standard apple-trees in good condition are equal in beauty to oaks any day, and there are some varieties of pear, plum, and cherry that make remarkably handsome trees of large size. Thus, then, we shall have no trouble in selecting materials for breaking the sky line, and affording some kind of majesty to the shrubbery. Nevertheless, *pyramid* and *bush* forms are those most needed to produce the thick and various plantation that affords so much delight during a walk through a shrubbery. A most important member, therefore, of this useful shrubbery is the filbert, which never becomes a great tree, which is usually picturesque, and, while in leaf, a very bold and handsome tree. It is not generally known that the *purple-leaved nut*, which is catalogued as one of the choicest garden trees, is also a really profitable variety to grow, for the nuts are produced in plenty, and are of excellent quality. The apple, plum, cherry, mulberry, quince, and pear may all be employed in the form of bushes and pyramids; and in respect of beauty the pear will undoubtedly take the lead, for leafage that almost equals the camellia, for flowers that rival the may or the snowdrift, for fruit that is always elegant, and some-

times rich in colour. Moreover, a few peaches, apricots, and nectarines may be added, and in good seasons their fruits will ripen well, and in bad seasons they will be splendid when in flower, and their leafage equal in beauty to that of most shrubby trees all the summer long. To vary the front lines we have the berberis, useful for preserving; the currant, a grand thing for ornament when grown in the standard form, four or five feet high; the gooseberry; the raspberry; and there might be an edging of strawberries to finish off with. You will be saying that this, after all, is a fruit garden. Well, so it is; but I am considering how this fruit-garden can be made to do duty as *shrubby* in gardens where fruit is valued, and where the owners are not wealthy enough to have orchard and shrubby too. You see it compels us to consider the case, not alone as to the usefulness of certain fruits, but as to their *ornamental qualities*, those said ornamental qualities being but little or not at all thought of in the arrangement of an ordinary fruit-garden.

Let us begin, then, to plant a belt, and not a square. There may be, say, a walk in front of the belt, and on the other side of the walk a grass plot or lawn. The belt is to be shrubby, and there are available for it, in the way of trees, limes, poplars, willows, alders, etc., etc. Now I propose that we plant, instead, standard apples, pears, plums, cherries, one or two walnuts and mulberries; and, in the event of this border being in a very warm and highly-favoured part of Britain, a few standard sweet almonds. Should larger trees be wanted for the background, the Devonshire Prolific chestnut would occasionally afford a crop of eatable nuts, and in time to come most valuable timber.

For the bulk of the furniture, we must rely on bush and pyramid fruit trees. If well managed, these are most beautiful and interesting, the pears especially, and they produce enormous crops, considering the comparatively small extent of ground required for even a large collection. I would mix a few evergreens, dwarf shrubs, and clumps of hollyhocks with them, to preserve the shrubby character, and I would afford ample room to all to allow of a free circulation of air, and admit abundance of light. The finishing of the front line would require more taste than the general arrangement of the mid-distance and background. A few Weigelia, scarlet-flowering Ribes, the golden-flowering Forsythia viridissima, Cotoneaster Simmonsii, and any or all the hardy Berberis obtainable, would be suitable to obtain a pleasing variety; and with a few clumps of herbaceous Pæonies, Irises, Phloxes, and Achilleas would secure both interest and beauty. The useful part of the front line would, of course, consist of standard currants, trained gooseberries of the goblet and umbrella forms; Berberis vulgaris, miniature apple, pear, cherry, and plum trees; and a few of the hardier varieties of grapes, trained to stakes. In respect of the miniature trees last named, I will remark that I have had excellent crops of fruit on trees of only two and three feet in height, and such little things are such as would be suitable. Of course, in time they will persist in growing large, but that only fits them for removal a stage further back.

The last remark serves to introduce all I think it needful to say as to the cultivation of these trees. To buy and plant them is easy work enough, but to do full justice to them is another matter. Unless the soil is extra rich, the surface should be mulched every winter with half-decayed manure, two or three inches deep, and every tree not required to become a giant should be carefully lifted and replanted every second or third year. The labour required for this process will be more than paid for by the increased and increasing productiveness of the trees. And to reduce the treatment to system, the best rule to follow would be to lift and replant a portion every year; so that, in the course of every three years, all except the standards should be subjected to the process. During the summer the periodical pinching back of the shoots, until the latter part of July, would have to be attended to. Such a shrubbery, therefore, would afford recreative employment, as well as recreative sights, odours, and flavours; it would tend to promote perfect harmony between the heart, the head, and the hands. And the consideration of the subject is earnestly commended to all our amateur readers who cannot command both fruit gardens and shrubberies on so ample a scale as the scope of their desires.

A SHORT LIST OF HANDSOME VARIETIES OF USEFUL FRUITS.

APPLES.—*Dessert kinds, suitable to grow as Bushes and Pyramids.*—Astrachan, White Calville, Cornish Gilliflower, Court Pendu-plat, Court of Wick, Cox's Orange Pippin, Dutch Mignonne, Early Julien, Golden Drop, Golden Pippin, Red Juneating, Kerry Pippin, Melon, Old Nonpareil, Irish Peach, Grange's Pearmain, Pearson's Plate, Quarrenden, Reinette du Canada, Ribston Pippin, Northern Spy.

Kitchen Apples for Bushes and Pyramids.—Beauty of Kent, Bedfordshire Foundling, Cellini, Cox's Pomona, Duchess of Oldenburgh, Fearn's Pippin, Flander's Pippin, Gooseberry London Pippin, Mere de Menage, St. Sauveur, Waltham Abbey Seedling.

Varieties that make fine Standards.—Shepherd's Fame, K, D; Stamford Pippin, D; Franklin's Golden Pippin, D; Early Nonpareil, D; Isle of Wight Pippin, D; King of the Pippins, D; Cockle Pippin, D; Blenheim Orange, K (this makes a gigantic and noble tree in a free, deep, heavy loam); Keswick Codlin, K; Manx Codlin, K; Dumelow's Seedling, K; Hawthornden, K; London Pippin, K; Norfolk Beefing, K; Northern Greening, K; Warner's King, K.

PEARS.—*Varieties suitable to grow as Bushes and Pyramids.*—Alex. Bivort, Alex. Lambre, Baronne de Mello, Bergamotte D'Esperen, Beurré D'Aremberg, Beurré D'Amanlis, Beurré Diel, Easter Beurré, Beurré Hardy, Beurré Leon le Clerc, Colmar d'Ete, Comte de Lamy, Comte de Paris, Delices de Jodoigne, Conseiller de la Cour, Doyenne D'Ete, Forelle, Huyshe's Victoria, Josephine de Malines, Louise Bonne of Jersey, Madame Miller, Winter Nelis, Yat.

Varieties suitable to grow as Standards.—Jargonelle, Zephirin Gregoire, Thompson's, Suffolk Thorn, Swan's Egg, Seckle, Knight's Monarch, Bon Chretien, Comte de Flandres, Duchesse d'Orleans, Eyewood, Gansel's Seckle.

PLUMS.—*Varieties adapted to grow as Bushes and Pyramids.*—Coe's Golden Drop, Denniston's Superb, Early Mirabelle, Golden Esperen, Green Gage, Guthrie's Aunt Ann, Jefferson, Reine Claude de Bavay, Belle de Septembre, K; Mirabelle, K; Mirabelle Tardive, K; Cluster Damson, K.

Varieties adapted to form large Trees.—Brahys Green Gage, Huling's Superb, Kirke's, Mamelonné, Prune Pêche, Perdrigon Violet Hatif, Transparent Gage, American Damson, K; Autumn Compote, K; Diamond, K; Gisborne's, K; Early Orleans, K; Pershore, K; Pond's Seedling, K; Victoria, K; Washington, K.

CHERRIES.—*For Bush Culture.*—Archduke, Belle de Choisy, Coe's Late Carnation, Belle Magnifique, Late Duke, Florence, May Duke, Morello, Reine Hortense.

Suitable to form handsome Trees.—Belle d'Orleans, Bigarreau Napoleon, Black Tartarian, Cleveland Bigarreau, Downton, Elton, Governor Wood, Archduke, Empress Eugenie, Kentish, Nouvelle Royale.

Lists of other kinds are of less importance than the classes already considered. We have no handsomer shrubby trees than the American and Siberian crabs, but the pity is that very few people can turn their fruits to any good purpose. Yet they are well worth preserving. One method, practised in the writer's household, is to place them in jars quite dry, and pour boiling honey over them. In due time they are taken out, and used for open tarts, and are in this way *delicious*. Another good use for them is to make apple jelly. The little apples are stewed till quite soft, but are not allowed to break, in as much water as will just cover them. They are then strained off, and squeezed, and thrown away. The liquor is then boiled with sugar, at the rate of three-quarters of a pound of sugar to every pint of the juice. Flavouring may be added, if desirable, but a little lemon-peel and lemon-juice are all the flavourings required. After simmering half an hour, the liquor is poured into moulds, where it becomes a transparent jelly, of most delicate flavour and elegant appearance.

S. H.

SOME STOVE PLANTS THAT BEAR COOL TREATMENT.



THE idea of "naturalizing" plants from the tropics has long been exploded; but, like the search of the alchemists for some principle which should transmute any and every metal into gold, this idea has unexpectedly been the means of leading us to the discovery of much of which we can make practical use. Our stove plants are no hardier now than they were fifty years ago, but we have learned much better how to cultivate them; and one of the lessons we have learnt is, that at certain seasons of the year, and under certain circumstances, they will bear a much lower temperature than had been anticipated. In a word, all plants require a season of rest. Allow them to hybernate for a time, and then when you rouse them up once more they spring into existence with renewed vigour. How many plants we can recall which we at first stewed and parboiled in our stoves; soon they were moved into a warm corner of the greenhouse, and then, having overgrown the space allotted to them, they were some lucky spring morning planted in a warm corner out of doors, just to take their chance. With what result? Why they perfectly astonished us with their wonderful growth; they had at last been treated in a manner which suited them. I could spread out this paper to any extent by giving illustrations of this. I might give instances from the plants which were introduced years and years ago, such as the *Aucuba* and the *Leycesteria*, and might bring my observations down to the present day by giving some of the results obtained this very year in the sub-tropical department at Battersea Park.

One great lesson we have learnt is, that many who from not possessing a stove may have considered themselves unable to grow foliage plants, may now take heart, and compete with their more fortunate neighbours. We would simply throw out a few hints, leaving our readers to act upon them as circumstances shall allow, and hoping to hear of their success next season. Few gardens are so poor as not to possess a little vinery, which is started early in the spring; or if no vinery, there is at least a good hot-bed. With these appliances much may be done—many novel effects produced in summer, and much additional interest given to the garden. We shall confine our remarks to the growing of foliage plants in pots, not venturing into the wider subject of grouping them in beds out of doors.

First of all, we come upon a set of genera which will bear drying off in winter; these are particularly useful in small gardens, where space (as it sometimes is in the largest gardens) is very scarce in winter. Everybody who can grow *Achimenes* and *Gloxinias* may venture upon *Caladiums* with the same kind of treatment. In either case, the roots must be kept dry, and not allowed to feel the effects of frost. How much cold they will really bear without injury is a question very difficult to answer; a small amount of cold accompanied with moisture would do far more injury than a greater degree of cold when they were quite dry and at perfect rest. This is, therefore, a point upon which we may expect differences of opinion. This one genus, *Caladium*, throws open to us at least a score of varied and most beautiful plants. All that would be necessary for them would be a good start in a vinery or hot-bed in the spring, and protection from cold draughts in summer. There may be—I do not say there is—an exception in the case of the lovely little *C. argyrites*. I have found that it does not absolutely require the same amount of rest as some others; most of them give unmistakable signs when they want to retire for their winter's sleep.

There is no doubt but that the coloured *Begonias* enjoy a stove temperature; but may they not be coaxed into doing without it? There is good room to believe they may. Old plants—be careful to note the word “old”—old plants may safely be dried off for the winter. I recollect some years ago having a few old specimens for which no space could be found; they therefore took their place beside the dried roots in a dry and cool corner. They were watched, and from time to time the leaves which were going off were cleared away; in the spring they were pulled to pieces, and the healthy growing points selected for the formation of new specimens. The success was so great that this was made a precedent for future years, and much younger plants went safely through the ordeal. I have safely sent the dried rhizomes of these *Begonias* to friends in the colonies, both east and west. By-the-by, *B. discolor* (or as it is sometimes called, *B. Evansiana*) is a genuine greenhouse species, goes naturally to rest every winter, makes a capital edging for a bed out of doors, and may be propagated to any extent. Will nobody bring it out as a bedding plant at a trifle per hundred?

Some years ago, I dare say you grew, as I did, the rice paper plant (*Aralia papyrifera*) in the stove. It was just sent home by Fortune from the island of Formosa; what further proof did we need that it required a high temperature? The plant grew well, made magnificent leaves, and flowered; but it was terribly subject to the mealy-bug—what a job it was to keep it clean! You may generally paraphrase the expression—"This plant is infested by the mealy-bug," by "This plant wants a cooler place;" or else it has been pot-bound, or ill-used in some known or unknown way. We had to learn by experience, but it is dangerous work to experiment upon a plant worth four or five guineas, as that *Aralia* was then. It flowered as I said, and next season we had scores of seedlings. One or two found their way into the bed out of doors reserved for odds and ends. They grew splendidly, and we saw no more of the mealy-bug. If you want to see how it succeeds out of doors, go to Battersea Park in the autumn and enjoy an astonishment. I fully expect that it is quite hardy; that the roots, at least, will escape injury, even if left unprotected. At any rate, under cool treatment, and not allowed to be starved in its pot, it will make a glorious foliage plant. There are several other species of *Aralia*, introduced by M. Linden from New Caledonia, which may help to make up a cool collection of foliage plants.

That beautiful plant *Cordyline indivisa*, introduced by Messrs. Lee from New Zealand, requires of course nothing but the accommodation a greenhouse may afford; and the same may be said of many other allied species. When we come to look the list over, we find that the foliage plants which may, with the help of a hotbed in spring, be exhibited in competition with the truly stove plants, the advantage will not be all on the side of the latter. Let us see how our list would stand: *Caladiums*, *Begonias*, *Cordyline*, *Aralia*, *Cannas*, *Ricinus*, *Dracæna* (several New Zealand species), *Cycas revoluta*, *Dasylium*, and a good many others in the *Aloe*, *Agave*, and *Bonapartea* line.

Though there is much which we hope and expect may be done under "cool treatment," yet there are some plants which we may expect will hardly put up with this. Among these we must class *Cissus discolor*, which cannot be grown in too hot or too moist a house, nor can it be shaded too much. If you want to see the velvet leaves of this plant in perfection, you cannot overdo either of the three things mentioned—shade, heat, and atmospheric moisture. I should have said the same thing of *Alocasia metallica* and its allies, but I am almost afraid to speak about this plant, for I was on good authority told the other day of a plant which had done duty in a seedsman's shop for six weeks, and then stood out of doors for ten days without being injured or looking the worse for it. We have much to learn upon this subject, and every gardener who can help us to a fact he has himself proved, will help on the good time coming which will produce another great change in the fashions of the garden world.

C. W. C.

Kew.

NOTES ON TWO BEAUTIFUL FERNS.

ACROSTICHUM AUREUM.



THE first thing which the mention of this plant suggests is a curious fact in plant distribution—phanerogamous plants. While flowering plants are often found only as the inhabitants of very limited areas, there are numbers of ferns and other non-flowering plants which may be justly called “citizens of the world.” We need not go beyond the flora of our own little island for examples of this. A friend of mine has just sent me from Japan a frond of *Scolopendrium vulgare*, which is perfectly identical with the plants you saw growing by the hedge-bank as you came down the lane. Look at the frond; you would think I had gathered it there. In fact, the Hart’s-tongue fern is at home all through Europe, Asia, and some parts of America. The common Bracken (*Pteris aquilina*) has a still wider range. Mr. Moore, one of the best authorities on this subject, as you very well know, says that this, our commonest fern, “is common over Europe, and seems to be so in most parts of the world—many exotic species, so called, having no satisfactory distinctions. In Asia it is found in China, in Sitka, Kamtschatka, and Siberia; all over India; in the Malayan and adjacent islands. In Africa it occurs at the Cape of Good Hope, Mauritius and Bourbon, Sierra Leone, Senegambia, and Fernando Po; Algiers, Teneriffe, and Madeira. In America it has been found in California, Guatemala, and north-west Mexico, Veragua (narrower), Sandwich Isles (smaller), and in several parts of North America.” I am very much inclined to add to this long list of names, for I have specimens in my herbarium from places still unnamed. It is perfectly cosmopolitan.

Well, *Acrostichum aureum* has a very wide range within the tropics; it is found in the far east and the distant west; it is at home wherever heat and moisture are combined. It dearly loves the margin of a malaria-haunted swamp; and this gives us the clue as to the way in which we may best grow it. Those who have a warm tank for the growth of the regal Water-lily, or for any of the lovely family of Nymphæa, should half plunge the pot in which this glorious fern is cultivated in the warm water, and they would soon be rewarded by the sight of fronds, which would make the heart of the true lover of ferns to bound within him. It is all bosh to talk about good drainage for ferns, as though it were applicable to every individual species. For the majority it doubtless does apply, but there are many to which good drainage means partial starvation and sometimes death. You must not, of course, flood them with water in winter, but when growing fast it would be difficult to overdo it. Some people talk about growing Caladiums, and recommend “good drainage” for them. Why, there is nothing they love so much as water, unless, indeed, it is liquid manure. When growing freely, half plunge your Caladium pots in warm water, or, if you cannot do that, stand them in saucers kept full, and

see how they will thank you for it. But when autumn comes reduce the supply, and gradually dry them off for their accustomed season of rest. Forgive this digression. The *Acrostichum* and *Caladiums* both require an unlimited supply of water while growing, and a varying period of rest in winter (the fern, of course, must not be allowed to become dry even then, while the *Caladiums* may). This is my only excuse for thus coupling them.

The fronds of the *Acrostichum* are, when full-grown, full five feet long, and pinnate, or, in other words, only once-divided; the upper part of the mature fronds being covered with sori on the lower side. The pinnae (or divisions of the fronds) are from nine inches to a foot in length, quite smooth, and of a lively green colour. The fronds rise from a short upright stem, and seldom does the plant attempt to make offsets; consequently, like the *Hemidictyon*, and all plants of a similar habit, it needs occasionally to be renewed from spores. You cannot continue to grow a specimen of this for a whole lifetime, as in some other species; but this is no great drawback, for upon the first symptoms of wearing-out in your specimen you can easily raise some young ones from spores, which, with proper treatment, will quickly rival their parent. This *Acrostichum* would form a magnificent specimen for exhibition; and, curiously enough, one seldom sees it exhibited, although the plant has long been in cultivation. It would make one of the best back-row plants that could be selected, being so entirely distinct in character from any and every other fern grown.

ACTINOPTERIS RADIATA.

Acrostichum aureum will only be found suitable for growth in a garden where there is plenty of stove-room; so, as we have to suit the requirements of all classes, we must take as the subject of our next gossip a small-growing gem which deserves to be cultivated everywhere. The plant last mentioned has been introduced for many years (fifty, the books tell us, though it is still rare). The next we select is among the newest of new plants; in fact, it is so scarce, that I have only once seen it growing. I have plenty of specimens of it in my herbarium. The plant referred to is *Actinopteris radiata*. Such a pretty little thing is it, that you may cover a full-grown specimen with your hand; and the little fronds would remind one of a miniature fan-palm. It is a native of India, and is found as well in some parts of Africa, from Upper Egypt to the Cape of Good Hope, and in the islands of Bourbon and Madagascar. I find mention made of this lovely fern in "*Hortus Suburbanus Calcuttensis*," where it is said that most of the Indian ferns are confined to the mountain districts and the west coast of the peninsula; but this species, and *Cheilanthes farinosa*, are found in the hot dry plains of India. It grows plentifully upon the old walls of Madras, Agra, and other places. A capital figure of this fern is given in a work which is much more rare than it ought to be—Sir William J. Hooker's "*Icones Plantarum*." It may at first seem strange that one of the commonest Indian ferns was not sooner introduced into our gardens, but this may easily be accounted for;

ferns which naturally grow upon rocks or old walls are always difficult to transplant, except they are very young, and this fern has never yet been raised from spores in this country. So although the plant may have been frequently sent, yet it has never arrived in good condition until recently.

The fronds are thrown up from the root in tufts; they are flabellate, or fan-shaped, and often, especially when dry, droop down and are pressed against the stipes. The usual form of the fronds is with the ultimate divisions cut into two or three teeth at the apex, but there is a variety with fronds much more deeply divided. If you have friends in India, you should beg of them to send you fresh spores of this fern; for if you could raise a good stock of it, you would be doing good service to all fern-growers. Everybody who has seen this fern would be sure to want to grow it. It is so entirely unlike everything else in creation, that it never can be mistaken after being once seen. It has been called *Asplenium radiatum*. König and others called it an *Acrostichum* (a genus made to include all sorts of plants, as I said before). Fee called it an *Acropteris*; and Presl put it into the genus *Blechnum*. Its distinct habit, as well as the more minute botanical characters by which it is distinguished, fully entitle it to a name of its own, and a very appropriate one is that by which it is generally known now—*Actinopteris radiata*.

ROSES FOR THE GARDEN.



HERE are roses and roses—the stately queens of the exhibition stage, and their not less attractive, though less pretentious, sisters whose true position is in the garden. It has been too much the fashion for some time past to lose sight of these, in the desire to obtain large, showy, and it may be perfect blooms, so that many have almost disappeared from trade catalogues, and the grounds of the nurseryman. Roses of this kind, however, are so valuable for the general purposes of amateurs, that it is doing good service from time to time to bring their claims and merits into light, though in so doing it may be necessary to go back to ancient lists; scarcely so ancient, however, as the Hon. Mrs. Gore's book upon roses, where, out of some hundreds of varieties and species, not six are at present known. These free-flowering, pretty, and hardy kinds are capable of many interesting applications as objects of border decoration. Some form admirable bushes for the corners of intersecting walks, where they may be left to grow, sparsely pruned, in natural luxuriance; or they may be trained over rustic arches, improvised from spare branches of shrubs and trees, to form vistas from distant points of view. Others, again, are especially adapted to ramble over "banks and braes," among fantastic roots and stumps; or to form a canopy of blossoms for summer-houses and bowers. Others, again, will clamber skywards, flinging flowery festoons as they ascend; or serve to conceal rough fences, or unsightly boundaries,

dotting that which would be offensive to the eye of taste with lovely and brilliant blossoms. One of the most interesting and beautiful methods of utilizing these roses is to bud the stronger-growing kinds with numerous other sorts of various colours, after the manner described in Mr. Hibberd's valuable "Rose Book," a handbook no lover of roses should presume to be without. Another way in which these gems of the garden should be employed is pegged down in beds; white, yellow, rose, and scarlet charmingly intermingling, and if on their own roots, multiplying themselves year after year, till their owner could supply half a neighbourhood from their prolific suckers.

Mere generalities, however, do not convey much practical instruction; let us, therefore, proceed to an examination of the kinds suitable for the purposes we have indicated. For instance, let us take that old *BOURBON Armosa*, a kind hardly heard of now-a-days. What a glorious thing for a bright, ever-blooming bed! Rosy, double, and free to a degree, though small, and without much substance; like many others hereafter to be named, having no pretensions as a florist's flower, but invaluable for the bed or bouquet. Take others of the Bourbon class, which abounds in roses eminent for garden properties, such as *Acidalie*, *Bouquet de Flore*, *Comice de Seine et Marne*, *Emotion* (new), *Pierre de St. Cyr*, *Dupetit Thouars*, *Paul Joseph*, *Le Grenadier* (magnificent dark colours of various shades), *Paul et Virginie*, *Madame Desprez*, *Sir Joseph Paxton*, and *Bourbon Queen*, and we have a selection of hardy autumnal bloomers of different colours and habits, admirably calculated for numerous garden purposes, which will bestow upon us blooms when blooms are, alas, few and far between.

Some of the true *NOISETTES* are very rampant growers, and commendably persevering in habits of bloom. *Luxembourg* is an old variety of this kind, which will form a corner bush, and which, in three or four seasons' growth, will attain the size of a huge lilac-tree, large enough for a whole garden of other kinds to be budded upon it. Other desirable sorts among the Noisettes may be found in *Jaune Desprez* (unfortunately very tender), *Eclair de Jupiter*, *Vicomtesse d'Avesne* (I fancy this is a Noisette), *Ophirie*, a peculiar colour, *Triomphe de la Duchere*, *La Biche*, *Lamarque* (a show rose) superb on a warm wall; and their newer congeners, *Louise Darzins* (which quite supersedes that old favourite, *Aimée Vibert*), *Madame Alfred de Rougemont*, *Lady Emily Peel*, and *Pavillon de Pregny*. These afford a completely different but not less useful class of border ornaments, for the choice of the cultivator of moderate desires, who has an eye for homely beauty, and is not craving after the empty honour of a prize-box at some second-rate show.

Some of the older *HYBRID PERPETUALS* furnish us with fine specimens of the garden rose proper. What a chaste thing is *Noemi*! *Sydonie*, again, quite an enchantress, with globular blossoms of true pink, a rare colour in modern roses. But let us go into a list of some of these bygone charmers, which recall the days of stomachers and lace, or the short waists and close garments of the

Regent George's period, as superior, possibly, in real taste and fitness to the modern trains and chignons, as the roses themselves are to half the foreign, flaunting, loose-eyed pretenders we get so many of, but which, fortunately, soon retire into the limbo of merited oblivion.

In continuation of the older roses, we enumerate *Marquise Bocella*, *Desgaches*, *Louis Bonaparte*, *Souvenir de Leveson Gower*, *Mrs. Elliot*, *Madame Laffay*, *Pæonia*, *Dr. Marx*, *Duchess of Sutherland*, *Baronne Prevost*, *Mère de St. Louis*, *Reine des Fleurs*, *Dr. Ruschpler*, *Pio Nono*, *Madame Phelip*, *Madame Place*, *Baronne Hallez*; and of modern, *Le Rhone*, *Jean Bart*, *Parmentier*, *Wm. Paul*, *Admiral Nelson*, *La Brillante*, *Therese Appert*, *Reine de la Cité*, *Triomphe des Beaux Arts*, *General Simpson*, *Ornement des Jardins*, near to scarlet, *Madame Bravy*, and *Lord Palmerston*, and we have a goodly array of pretty free-blooming varieties for almost any purpose our gardens require. To these may be added about a dozen of the finest roses we possess, so often enumerated it would be waste of space to repeat them here.

We must yet take a passing look at the CHINAS that are specially useful. *Mrs. Bosanquet* is delicately beautiful, and decidedly still a first-class flower in the camellia-like style, which cannot be dispensed with for any purpose. The pink china is also most useful. To these may be added *Louis Phillipe*, *Archduke Charles*, the changeable rose, and *Cramoisie Superieure* and *Fabvier* for bedding.

But it is to the TEAS we must look if we desire true perpetuity, and it is to this class all the really continuous bloomers owe that valuable habit. The most hardy of this beautiful section may be adopted with safety in any warm and sheltered position not too far to the north, if a little temporary protection in the rough Hyperborean blasts. Unfortunately, these charming productions of nature are so delicate in constitution that they cannot bear even the smell of frost, so that if we wish to cultivate them under the open canopy of heaven they must, like our own beauties, have their winter furs and victorines, or something equivalent, unless under exceptional climes and conditions. Some, however, are more hardy than others, and such will be found among the following list: *Buret*, *Bougere*, *Caroline*, *Deconiensis* (one of the earliest English-raised roses, and still unsurpassed), *Goubalt*, *Gloire de Dijon* (first-rate in every quality), *Madame de Vatry*, *Mareschal Bugeaud*, *Melanie*, *Villermoz* (a show rose), *Narcisse*, *Safrano*, *Madame Fulcot*, *Sombrieul*, *Vicomtesse de Cazes* must be added, although so susceptible of the "winter's whip," on account of its continuous and prolific bloom. Thoroughly protect it, and although the upper shoots may be killed back, it will, phoenix-like, renew itself from the roots when touched by the revivifying beams of the summer sun.

In connection with the subject, the season of planting suggests a few directions for that operation. As soon as the ground is sufficiently dry to become friable, plant *at once*. The trees planted before Christmas gain half a season. Take care the briars and those on their own roots are not planted deeper than the collar; manettis can scarcely be too deep, but eradicate any too prominent eyes that

can be detected. Let the soil be rich, the planting firm, the mulching thick, the watering in dry weather in the spring be copious, and with auspicious fortune there will be abundance of lovely blossoms to make the garden glow, to adorn the vases, and to decorate the button-hole.

W. D. PRIOR.

Woughton House.

THE AZALEA INDICA.



THIS noble plant is now in process of being forced, for the decoration of the conservatory, the first batch in good establishments usually coming to perfection in December, and being succeeded by others until May, when the pelargonium takes its place, as the most showy greenhouse plant.

Though, in common with many other fine subjects, it is very easy to grow and flower the Azalea in perfection, it is nevertheless very easy also to make the plant a mockery of itself and its cultivator, or, I might say, its destroyer. I hope I shall not offend any of the readers of the *FLORAL WORLD* by saying that amateurs rarely do this plant well, but professional gardeners are generally expert in handling it. However, should what I have said offend any one, I will endeavour to make amends by a short and useful essay on the subject.

The plants are now at rest, or have lately been put in to force. We will therefore consider their treatment as it commences from this season. The plants may be kept in a cool greenhouse, until the natural warmth of the advancing spring causes them to bloom naturally, or they may be made to bloom at any time during the winter by placing them in a genial temperature. If kept cool, they require but little water during winter, but it is most important, winter and summer, *never to allow azaleas to become dry at the root*. If dried up for a week or two, as in some greenhouses they are, the flower-buds never open, except in the likeness of bits of chaff, which fall from a sort of leafy eye when the plant commences its spring growth. But if forced, water must be supplied in exact proportion to the amount of heat, and the syringe must be used freely and frequently, not only to wet the leaves, but also the bark. A fierce or sudden heat is most injurious—more injurious, in fact, than a little frost to those treated on the cool system. Plants to be forced should be removed from the pit to the greenhouse, and, after a week or ten days, may go to the stove, or forcing-pit. If the temperature can be regulated to a nicety, it ought to start from 50°, which will dispose them to move quietly, to 60°, which will cause a very promising swelling of the buds, and thence rise to 70°, which is the maximum heat for forcing this flower. A humid atmosphere is essential to success, and the plants should be as near the glass as possible, to enjoy all the light that they can have at this dark season. After the flowers fairly begin to open, cease using the

syringe, but continue to give water in sufficiency at the roots; and once a week, from the first stage of forcing till the flowers are full out, give them a dose of *weak* liquid manure, made by steeping sheep or deer dung in a tub, and using the solution in a quite clear state. When fairly out, and indeed before they attain their fullest perfection, remove them to the conservatory, or wherever else they are to be exhibited, and maintain for them a heat as near to 60° as possible.

When the flowering is over, the plants make their new growth for the season. Indeed, this often commences while the flowers are still at their best; and, in my opinion, the little tufts of emerald green leaves peeping out amongst the flowers intensifies the beauty of the plants; for what is colour, however rich, without a little green to give relief? But some cultivators nip out these shoots in order to preserve a dense and uniform mass of colour. Every one to his taste. All I need say on the subject is, that nipping out these shoots does the plants no harm, and so those who like to do it may.

I am not in favour of turning out either camellias or azaleas during the summer. I know that in many gardens it must be done, because of the small extent of glass compared with the number of plants cultivated. Certainly the splendid camellias at Chandler's years ago, and in the present day at Messrs. A. Henderson's, Edgware Road, and at Messrs. Veitch's, Mr. Turner's, and in all the best managed private gardens, are *always under glass*. Travellers tell us that in their native climes these shrubs grow in damp, shady woods, where tall trees tower above them, and effectually screen them from the sun. Therefore, to be always under glass, and effectually shaded in the summer, is consistent with their natural habits. However, those who must put them out are advised never to do so till the end of May, then to choose for them a position equally sheltered from wind and sun. Azaleas forced early *must* of necessity make all their new growth in the house, and the best way to manage them is to carry them back after they have flowered to the pit, or house, in which they were forced, and there again let them have forcing treatment, say a temperature of 55° by night, rising to 65° or 70° by day, with frequent syringing and watering, to encourage a free growth. At the end of May, these may go out of doors with the rest, if "turning out" is the practice of the garden.

The subject of repotting is one of great importance. Many of my best plants have been three years in their pots, but have been annually top-dressed with thoroughly-decayed cow-manure, assisted with liquid manure. As a rule it is desirable to give them a small shift every year—that is to say, to shift them into the *next size*. Any larger shift is more harm than good. I prefer to shift them in autumn, after the growth of the season has become quite ripe, and I can feel the flower-buds in the points of the shoots. The operation is a very simple one. Turn out the plant, remove the crocks from the bottom of the ball; have the new pot ready to receive it, with crocks regularly arranged for drainage, and covered with a layer of tough, fibry peat, or nodules of very fibrous loam. Lower the plant into its place without disturbing any of the roots, and fill

in with a mixture of yellow loam, two parts; peat, one part; quite rotten dung, one part; and sharp sand, one part. Ram the stuff in firm all round, give one good watering, and set the plant aside till the time comes to force them. This process of shifting may be performed immediately after the flowering is over; but if shifted at that time, they should be placed on a bottom-heat of 65° to 70° , to promote the formation of the roots in the new soil. As for pruning, any moderate shortening in may be done at any time, but the best time is immediately after flowering.

We sometimes meet with old scrubby azaleas that have been much neglected. The best way to recover these is to keep them cool till March, and then cut them down to the shape and size required. Immediately after this operation, lay them on their sides on a moist propagating-bed, or on a very sweet dung-bed, giving no water at the root, but frequently plying the syringe with tepid water on the old wood. A heat of 70° is the utmost they should be subjected to, and indeed 64° will suffice, if no more can be afforded. They will soon begin to bristle with little green shoots, and when these are half an inch or so long, knock the plants out of their pots, and pick the earth out from amongst the roots, and cut the roots back considerably, and finish by potting them in as small pots as they can be got into, to allow of an inch of fresh soil all around for the new roots to run into. They must be immediately stood on a tan-bed, or on any surface heated to 70° , and there be kept in a sort of vapour-bath, but have very little water at the roots until they are growing freely. Then gradually increase the supply of water to the root, and diminish the degree of humidity in the air, and you will in due time have a fine growth. This is a golden rule for grinding old people young in the queendom of Flora, and it applies particularly to hard-wooded plants that have become old and ugly, such as camellias, oranges, etc., etc.; but it does not apply to heaths, for they will not stand the heat, and indeed the best way to treat old and ugly heaths is to throw them away.

To propagate azaleas is a most easy matter, but success depends on taking the cuttings at the *proper time*. Take cuttings of the young shoots when they are about two inches long, when they are quite soft, but yet have made a good growth. The garden term for this condition is "half-ripe." If getting woody, they will not strike; if very sappy, they will quickly rot. Having made the cuttings, dibble them into silver-sand, sprinkle them slightly, cover with bell-glasses, and let them remain in a warm house for a week. Then place them on a bottom-heat of 60° to 70° , and keep them always moist, but never wet, until they begin to grow at the points, when the bell-glasses must be taken off. About a week after that, pot them separately in small pots filled with equal parts of peat and silver-sand, put them on a gentle heat, again use the syringe upon them regularly, and they will soon fill their pots with roots. You now have but to shift them on annually, and to pinch out the points of the young shoots to promote a bushy habit, and in due time they will repay you for your care.

In selecting azaleas, a few of the most distinct and striking will

serve the purposes of most cultivators. For those who love collecting there is abundant room for speculation and entertainment in this magnificent family, the varieties of which are very numerous. The following is a good selection of twelve old varieties:—Admiration, Criterion, Etoile de Gand, Extrani, Gem, Gledstanesi, Sir H. Havelock, Iveryana, Juliana, Perfection, Perryana, Variegata. Among varieties of more recent introduction, I would name as desirable, *Oracle* (F. and A. Smith), paper white; *Reine des Pays Bas*, violet and crimson; *Grande Duchesse de Bade*, red and chocolate; *Fascination* (B. S. Williams), pink and carmine; *Stella* (Veitch), orange scarlet, the finest-formed azalea known; *Vesuvius* (Veitch), like *Stella*, and a very nice point to determine which is the best of the two; *Splendidissima* (B. S. Williams), red and white, striped like a carnation; *Dieudonnee spae*, salmon and white; *Flag of Truce*, semi-double white. I could name a hundred more without risking the introduction of a bad one, for they are all good. But I have named those that are most distinct in colour, most free to grow and bloom, and most perfect in the several properties required in these flowers.

But I must not forget a few varieties that are worth adding to collections already formed. Most important, for the sake of its splendid golden flowers, is *Azalea sinensis*, a deciduous kind, which produces its flowers before the leaves. It is a grand conservatory plant, and nearly hardy, therefore do not force it in a strong heat. *Boquet de Flore*, is a splendid hardy hybrid, the flowers are red, white, and yellow. *Petunæflora* is a superb variety of the India race, which makes a fine contrast to whites and yellows in the conservatory, the colour being rosy purple. *Phanicia floribunda* is a good purple, not quite a show flower, but invaluable for decoration. Lastly, *Azalea obtusa* is a little rosy-flowered gem for the cool conservatory or greenhouse, and a good subject for forcing; and *A. amana* is like it, but much hardier, and answers to perfection for the front of an American bed in sheltered places.

Azaleas are subject to few diseases or insects when properly treated; but sometimes the best treatment will not prevent thrips. To deal with this pest, proceed as follows:—Take five pounds of soft soap and dissolve it in ten gallons of rain water; then add one gallon of strong tobacco water. Into this mixture dip the plants, and lay them on their sides, to prevent any of the mixture reaching the roots. In about half an hour (or less) after the dipping, wash them in a tub of soft water, and they will be as clean as if never a thrip had touched them. In the course of a fortnight repeat the process, which will kill any young that may have been hatched from eggs which the first dipping did not remove. The dipping does no harm to the plants provided it is *not allowed to dry on them*; hence it is I say wash them in half an hour or less. If too large to dip, wet them with the mixture by means of a syringe, and to prevent the mixture reaching the roots, and also to save it from waste, lay them on a “drenching board,” the ingenious contrivance figured at page 121 of the FLORAL WORLD for June 1860.

J. WALSH.

NEW PLANTS.



ONCIDIUM MARSHALLIANUM (*Gard. Chron.*, 1866, p. 682).—This comes near to *O. pectorale*, but is far more splendid; the flowers are of a golden yellow, marked with maroon brown spots on the sepals and petals. The auricles of the lip are very prominent and quadrate. It occurred amongst numerous *Oncidia crispa* introduced by Messrs. Low and Co., and flowered with W. Marshall, Esq., of Enfield.

ADIANTUM FARLEYENSE (*Gard. Chron.*, 1866, p. 730).—This superb Maidenhair fern is closely related to *A. tenerum*, from which it differs in the larger size of the pinnules and the regularly dichotomo-lacinate condition of the margin of the sterile pinnules, which are also free from the small serratures which occur so distinctly on the sterile portions of the fronds of *A. tenerum*. "To these differences may be added the dimorphous development of the plant, so entirely different are the elegantly-fringed sterile pinnules from the more contracted fertile ones. As a garden plant it is far more beautiful than either *A. tenerum* or *A. trapeziforme*, with which it has been compared. It is, in fact, one of the most graceful species yet known, and perhaps the most lovely genus of the pre-eminently lovely family of Ferns."

ADIANTUM VELUTINUM (*Gard. Chron.*, 1866, p. 777).—A noble stove fern, introduced from Columbia by M. Linden. It is remarkable for the tall stature of its much-branched ample supra-decompound fronds, which attain from three to four feet in height, and also for the whitey-brown felt of cobweb-like intricate hairs or hair-scales which give quite a velvety appearance to the rachides, especially on the upper surface. The ultimate pinnules are about an inch in length, dimidiate, with the anterior base truncately rounded, curved backward at the base, and rounded or sub-acuminately produced and slightly falcate at the apex. The sori occupy nearly the whole width of the marginal lobes, and are oblong or reniform according to their length, usually one only, but sometimes two, occurring on the lobe. In the form of its pinnules and general character the plant has some resemblance to *A. Wilesianum*, but is altogether more robust.

ATHYRIUM PROLIFERUM (*Gard. Chron.*, 1866, p. 778).—A graceful Ceylon species with pendant fronds a foot and a half long, of a narrow linear-lanceolate form, nearly equal in width throughout; the pinnæ are scarcely more than an inch in length, and have one or two separate pinnules at the base, and then become decurrent. The fronds bear young plants near the apex of the rachis, sometimes two or more on the same frond. It forms an elegant plant for suspending in a small fancy basket amongst orchids, and requires stove temperature.

ADIANTUM LINDENI (*Gard. Chron.*, 1866, p. 778).—This elegant species of Maidenhair was introduced from the Amazons by M. Linden. It is one of the larger stove species, with the habit of *A. Wilesianum* and *A. velutinum*. The pinnules are large, rather distant, and distinctly lobed, the lobes being parallel and quite entire at the sides, and bluntly toothed along the apex; the pinnules are also remarkably acuminate, and measure an inch and a half in length. The rachis is smooth on the lower and velvety on the upper surface.

CATTLEYA DOWIANA (*Gard. Chron.*, 1866, p. 22).—Orchideæ. A superb species from Costa Rica, quite distinct from everything else in the genus. The expanded flowers are nearly seven inches across, and the fringed labellum not less than four inches long, the latter having protruded about an inch beyond the point of the unexpanded buds. The sepals and petals are of a mellow straw colour, while the lip is one uniform mass of the darkest purple velvet, streaked regularly throughout with gold threads. The entire stock of this fine plant is in the hands of Messrs. Veitch.

QUERCUS RAVENSCROFTIANA (*Gard. Chron.*, 1866, p. 1018).—A supposed oak, "said to be ornamental in appearance," not yet known to be hardy, not yet having been seen in flower or fruit, and about which indeed no one knows anything except that it has oblong elliptical leaves about two inches in length, which are sessile and disposed alternately on each side of the twig. Mr. A. Murray has the coolness to describe this as "a very remarkable species," and to name it after Mr. Ravenscroft, of Messrs. Lawson and Son's establishment, a very worthy gentleman, who, if to be complimented at all, deserves some better usage than to have his name associated with an imaginary species.

RODRIGUEZIA BATEMANI (*Gard. Chron.*, 1866, p. 1042).—Orchideæ. An elegant South American plant, formerly described as *Burlingtonia rubescens*. It has small bulbs, long leaves, and a spike of whitish flowers with a purplish violet hue.

DENDROBIUM PARCUM (*Gard. Chron.*, 1866, p. 1042).—A poor-looking species with a branching stem in the way of *D. ramosissimum*, having narrow grassy leaves two to three inches long and racemes of small greenish flowers.

BIFRENARIA INODORA VAR. **XANTHINA** (*Gard. Chron.*, 1866, p. 1042).—Orchideæ. "It is very remarkable to see a splendid yellow variety of this well-known plant with green or purplish flowers and a purplish lip."

BRACHYSTELMA BARBERIÆ (*Bot. Mag.*, t. 5607).—Asclepiadææ. This is an extraordinary plant—a native of South Africa. The root is a depressed tuber, as large as a turnip, the stem very short. The leaves are three to four inches long, linear-oblong; the flowers in a sessile globose head, four to five inches in diameter, dingy purple, speckled with yellow in the disk. The lobes of the corolla terminate in slender tails, one inch long, which arch inwards and cohere over the centre of the flower, producing over the whole of the strange flowery ball an elaborate and elegant net-work.

NIEREMBERGIA RIVULARIS, *Water Nierembergia* (*Bot. Mag.*, t. 5608).—Solaneæ. A pretty little species from La Plata. It has slender, creeping stems, variable leaves, and flowers an inch and a half in diameter; the colour yellowish white.

THE GARDEN GUIDE FOR DECEMBER.

FLOWERS OF THE MONTH.—*Greenhouse*: *Echeveria retusa*, *E. secunda*, *E. Scheeri*, *Andromeda phyllææfolia*, *Daphne Indica*, *Echium fastuosum*, *Globulea hispida*, *Hermannia plicata*, *Pittosporum flavum*, *Mesembryanthemum bifidum*, and *crassifolium*, *Witsenia Maura*, *Fuchsia serratifolia*, *Salvia splendens*, *Citriobatus pauciflorus*, *Jasminum nudiflorum*, *Gardenia Florida* and *citriodora*, *Gesnera zebrina*, and *splendens*, *China Roses*, *Indian Azaleas*, *Camellias*, *Chinese Primulas*, *Russian* and *Neapolitan Violets*, *Cytisus* of sorts, *Coronilla glauca*, *Mignonette*, *Cyclamen Persicum*, various hardy shrubs, such as *Lilacs*, *Rhododendrons*, etc., according to the extent and orders of forcing.—*Ericas*: *Formosa*, *Gracilis*, *Hyemalis*, *Imbricata*, *Solandriana*, *Transparens*, *Pyriforme*, *Ardens*, *Westcottiana*, *Pellucida*, *Concinna*, *Assurgens*, *Jacksoniana*, *Versicolor*, *Radiata*, *Cupressina*, *Prestans*, *Scabriuscula*, *Ignescens*, *Grandinosa*, *Denticulata*, *Recurvata*, *Reflexa*, *Sebana*.—*Garden*: Though there may not be a single flower found, a December list of plants that *may be in bloom* will not be without its use, as in warm seasons the gardens in favoured districts are occasionally quite gay with flowers up to Christmas: *Aconitum autumnalis*, *Cacalia hastata*, *Polemonium Richardsoni*, *Bottonia asteroides*, *Campanula colorata*, and *Burrelieri*, *Chrysanthemum tripartitum*, *Malva lateritia*, *Pinguicula orchidoides*, *Oenothera serotina*, *Chrysocoma virgata*, *Lobelia syphilitica*, *Aster cornifolius*, *serotinus*, *blandus*, *patens*, *radula*, *Eupatorium truncatum*, *Coreopsis ferulæfolia*, *Liatrix elegans*, *Hibiscus incanus*, *Galium capillipes*, *Corydalis pænifolia*, the varieties of *Primula vulgaris*, *Violets*, and *Wallflowers*.—*Orchids*: *Limatodes rosea*, *L. rosea alba*, *Odontoglossum maculatum*, *O. membranaceum*, *Barkeria elegans*, *Lælia albidula*, *L. anceps*, *L. anceps Barkeriana*, *L. peduncularis*, *L. prestans*, *Oncidium bicallosum*, *O. incurvum*, *O. oblongatum*, *O. unguiculatum*, *Lycaste Skinnerii*, *L. Skinnerii alba*, *L. Skinnerii rosea*, *L. Skinnerii superba*, *Leptotes bicolor*, *Zygopetalon brachypetalum*, *Z. crinitum cæruleum*, *Brassavola Digbyana*, *Cattleya Warscewiczii*, *Cœlogyne Gardneriana*, *C. Cummingii*, *Cypripedium insigne*, *C. insigne Maulei*, *Cymbidium giganteum*, *C. Marstersii*, *Dendrochilum glumaceum*, *Miltonia cuneata*.

GARDEN WORK.

Kitchen Garden.—There is not much to be done here now, the ground is mucky, there is nothing growing, and the weather will not permit of much ground work. On dry warm soils, peas and beans may be sown, but it is useless to sow them on heavy, damp soils in cold districts. Deep trenching of the ground should be carried on during fine, dry weather, in fact, the more digging the better, it is impossible ever to

lose by knocking the soil about, for the atmosphere enriches it. All roots are, of course, stored, except parsnips, and they are best dug as wanted; celery is banked up, and will so remain till demanded for the table. In the forcing department sea-kale, asparagus, and rhubarb, require regular attention, but they are so easy to do that there is scarce anything to be said about them, except that a temperature of 60° is enough, and that they must be kept only moderately moist. It is good to force asparagus in full daylight, so as to obtain purple shoots, but sea-kale and rhubarb are the better for total darkness. It is not the rule to mention the names of dealers, but we cannot resist stating that we forced an extra large quantity of sea-kale and asparagus last year, and had a supply of roots from Mr. Clark, of 42, Bishopsgate-street, which were remarkable for size, and the magnificent heads they produced. Only once before have we seen such roots of sea-kale, and that was in a collection grown by Mr. Bagley, the market-gardener, and exhibited at the Islington Cattle Show.

Fruit Garden.—Plenty of work here to prune, plant, and improve. Collections of bush fruits should be periodically transplanted. Old trees that have borne fruit for years may be much benefited by mulching the ground over their roots with fat manure; pig-dung is the best for the purpose; if unsightly, sprinkle a little earth over. Apple-trees infested with white blight should be cleansed with warm brine rubbed into the bark with a stiff brush. Manure gooseberry, and currant, and raspberry plantations, and put in cuttings of the first two if any increase of stock is required.

Flower Garden.—Cut down fuchsias, coarse herbaceous plants, and whatever else is dead at top, but alive at the root; make all clean and tidy, for there is gloom enough above, and as the grass is green, we may as well have as much cheerfulness as possible below. Deciduous trees, flowering shrubs, and roses to be planted. Evergreens, also, may be planted, but October is the proper time for them. But if well done during mild weather, they will hold their ground. Any bulbs not yet planted should be disposed of at the first opportunity.

Greenhouse and Stove.—In houses used merely to keep plants, use only as much fire-heat as will keep out frost, and give but little water. But where plants are expected to bloom, keep an average temperature of 45° to 50° at night, rising to 60° or 65° with sunshine by day. Chrysanthemums under glass do not like fire, but they must have enough to keep out frost. The majority of stove plants are at rest now, but those in growth or flower must have kind treatment. Orchids require great care, for though, generally speaking, very little moisture suffices for them now, a dryness that causes shrivelling of their bulbs is very mischievous.

Pits and Frames should have the lights removed on fine days, and all dead leaves and rubbish should be got rid of. Plants in want of water must have it, but let it be given with caution, so that the leaves will get dry before the lights are put on.

NEWS OF THE MONTH.

CHRYSANTHEMUM exhibitions have been held in all parts of London, and at Liverpool, Birmingham, and Bristol. The great event of the month was the exhibition by the UNITED HORTICULTURAL SOCIETY IN THE GUILDHALL OF THE CITY OF LONDON, when a magnificent display was made, both of the favourite autumnal flower and of fruits, fine foliage plants, orchids, and floral decorations.

Mr. Forsyth, of the Brunswick Nursery, Stoke Newington, exhibited an enormous collection of superbly-grown chrysanthemums; Mr. George, Stamford Hill, a group unequalled among all the competitions of the season for size, finish, and splendour of bloom. Mr. Crute, of Tufnel Park, not only made a gorgeous bank of "long rod" chrysanthemums, but in the centre of the hall constructed a beautiful flower-bed. This was made on a convex mound of grass mowings, enclosed in a stone moulding, supplied by Messrs. Rosher and Co., and encircled without by a gravel path. The bed had for a centre-piece a noble fern, then a broad circle of chrysanthemums, trained down to fit the regular convex surface of the bed, next a circle of *Iresine Herbstii*, next a circle of *Centaurea plumosa*, and outside of all a

lovely margin of white and crimson Chinese primulas. Amongst the other specially notable subjects were groups of foliage plants, from Mr. Tanton, nurseryman, of Epsom, in the midst of which was the finest plant of the variegated *Cyperus alternifolius* ever yet exhibited in this country. The president of the Society, Wm. Marshall, Esq., contributed largely from his valuable collections, and effected a *coup de grace* of liberality by presenting a glorious collection of orchids. Messrs. Lane and Son, of the nurseries, Berkhamstead, put up grand examples of pot grapes, bearing noble bunches, and a large collection of varieties of grapes in the most perfect finish of bunch and berry. It is impossible to enumerate all the meritorious features of this splendid exhibition; but it must be added that it was opened by H.R.H. the Duke of Edinburgh, assisted by the Lord Mayor, the Sheriffs, several members of the Common Council of the City of London, and by the officers of the Society, including William Marshall, Esq., the President, James Crute, Esq., and Shirley Hibberd, Esq., Vice-Presidents, and a deputation of the judges and working committee. Foremost amongst the local exhibitions must be named the twentieth display of the STOKES NEWINGTON SOCIETY, which was fully up to the standard of former years. The principal exhibitors here were Messrs. George, Forsyth, James, Rowe, Moxham, Howe, and Perrin. The SOUTH ESSEX SOCIETY had as good a display as in former years; the BRIXTON HILL SOCIETY made a beautiful display of chrysanthemums, combined with fine foliage plants and fruits. It is possible only to name the TOWER HAMLETS, the EAST TOWER HAMLETS, the SOUTH LONDON, the NORTH WESTERN, and the CLIFTON AND BRISTOL ASSOCIATIONS; to record their proceedings in any kind of detail is out of the question. But we must follow the plan adopted in former years of enumerating the varieties that have been most conspicuous for beauty, and close this brief notice with selections of the best kinds in the several classes. *Incurved varieties shown as specimen plants*.—Christine, Golden Christine, Mount Etna, General Bainbrigge, Little Harry, Annie Salter, Anaxo, Beauté du Nord, Vesta, Venus, Chevalier Domage, Golden Hermione, Prince of Wales, Prince Alfred, Lady Harding, Virgin Queen, Alarm, Alfred Salter, Garibaldi, Etoile Polaire, Golden Trilby, Julia Lagravere, Madame Poggi, Marechal Duroc, Queen of England, Queen of Whites, Snowball, White Christine, Virginie Mieliez. *Incurved varieties shown as cut flowers*.—Prince Alfred, Cherub, White Globe, Eva, Queen, Alfred Salter, Rev. J. Dix, Robert James, Venus, General Bainbrigge, Nonpareil, General Slade, Beverley, Golden Beverley, Themis, Jardin des Plantes, Empress of India, Beauty, Princess of Wales, Prince of Wales, Lady Slade, Nil Desperandum, Juno, Lady Carey, John Salter, Goliath, Orange Perfection, Oliver Cromwell, Golden Eagle, Bella Donna, Duchess of Wellington, Abbe Passaglia, Raymond. *Pompones shown as specimen plants*.—Cedo Nulli, Golden Cedo Nulli, Lilac Cedo Nulli, Brown Cedo Nulli, Andromeda, Rose Trevenna, White Trevenna, Bob, Madame Montels, Golden Aurora, Helene, Duruilet, Salamon, Trophée, Mr. Murray, Dr. Bois Duval, Florence, La Vogue, Madame Fould, Mrs. Turner, Riquiqui. *Large anemone-flowered*.—Lady Margaret, George Sand, Prince of Anemones, Madame Goderan, Louis Bonamy, Miss Margaret, Princess Margaret, Gluck, Margaret d'Anjou, Fleur de Marie, Empress, Nancy de Sermet. *Pompones, anemone-flowered*.—Jane Hatchette, Perle, Florence, Miss Nightingale, Regulus, Antonius, Queen of Anemones, Mr. Astie, Cassiope, Madame Sentir, Rose Marguerite, Madame Montels, Astrea, Shirley Hibberd, Boule de Neige, Ariane.

MR. SALTER'S EXHIBITION.—The charming display of chrysanthemums in the nursery at William Street, Hammersmith, has been crowded daily for several weeks past with admirers and connoisseurs of the chrysanthemum. Mr. Salter has, as usual, brought forward a number of novelties, some of them of the highest merit. Amongst the most beautiful of these are the following:—*Countess of Warwick*, a grand incurved flower of a pale primrose white, very chaste. *Ossian*, warm lilac, shaded with rosy purple, rich and refined. *Lady Talsford*, rather small for a show flower, but highly finished, the colour clear peach, with silvery turnover. *Faust*, a superior variety to Rifleman, the colour rich dark ruby. *Madonna Mary*, clear sulphur, deepening to pure yellow centre. *Dr. Lindley*, orange amber. *Purpureum elegans*, violet purple. *Gold of Ophir*, rich, gold yellow. The following, sent out in the spring of the present year, have been very fine this season:—Crimson Velvet, Countess of Granville, Compactum, Iona, Sylvia, Hereward, Golden Beverley. The pompones in the experimental border have flowered finely, not having been at all touched by frost.

TO CORRESPONDENTS.

THE GARDEN ORACLE for 1867 will be published on the 15th of December. Many letters have come to hand, the writers of which urge the necessity and importance of early publication. We can assure the writers of these letters that the plan of the "Oracle" does not admit of earlier publication, for its principal contents are original and strictly horticultural—a peculiarity in which it differs from other so-called garden almanacs, which are but compilations, or devoted to enunciations of the opinions, feelings, prejudices, blunders, and threatenings of their editors. The "Garden Oracle" for 1867 will contain a new list of fruits of all kinds for orchard, garden, and greenhouse culture; for forcing, exhibition, market, etc.; the whole arranged in such a manner as to enable all classes of cultivators to discover at a glance the names of the varieties best adapted for their several wants and wishes. In addition to this distinctive feature, there will be complete descriptive lists of new plants, new flowers, and new fruits; and the usual selections of the best varieties in every department for the guidance of both trade and amateur cultivators. The preparation of these lists is a laborious task, and incompatible with early publication. The last issue of the "Oracle" was not ready till far into January, yet it sold more extensively than any of its predecessors.

APRICOTS, PEACHES, AND NECTARINES IN OPEN BORDERS.—*W. B.*—You do not state what part of the British isles you dwell in, therefore it is impossible to tell you if you may safely invest in these trees without the aid of walls or glass. If yours is a bleak starving place where spring frosts are usually severe, it is no use to plant these trees as bushes in open borders, but in all the southern counties, and everywhere in Britain, in warm sheltered places as far north as Nottingham, and as far west as the Irish channel, the experiment may be hazarded without fear of its proving an utter failure. In 1863-4-5, we saw and tasted excellent samples of these fruits in the nursery of Mr. Ilman, of Strood, near Rochester, Kent. The trees were planted out without any kind of protection, just as apple, pear, or plum trees are planted, six years ago, and had been exceedingly productive. In the past season (1866) there was a good crop, but very few of the fruits attained perfection. We state just what we know on the subject, and leave *W. B.* to form his own conclusions, but it seems proper to add that if a failure occurs once in four or five years, it is still well worth while to plant a few of these trees; for after all, apples and pears fail now and then, and even such things as cabbages do not always come to perfection. The following are the names of the several varieties that have proved most hardy and fruitful when grown as bushes in open quarters:—*Apricots*, Alberge de Montgamet, Breda, Gros Peche, Hemskirke, Early Masculine, Large Early, Early Orange, Roman, Roman Orange, Blenheims. *Nectarines*, Violette Hative, Duc de Telliers, Downton, Elruge, Early Newington, Scarlet Newington, Murray, Pitmaston, Orange Red, Roman, Golden Roman, Rivers's Orange, Hunt's Tawney. *Peaches*, Early Anne, Early York, Grosse Mignonne, Red Magdalen, Bellegarde, Walburton Admirable, Barrington, Royal George, Violette Hative.

CRANBERRIES.—*Lady C. R. C.*—It is not at all likely that these will be fruitful in the position you propose to plant them. They need water, and if the natural disposition of the spot is not adapted for them, an artificial swamp must be formed. This is not a difficult matter if there is such in the vicinity, and the soil is of a peaty or sandy character. The most economical method of procedure would be to lay out a series of beds of spongy peat soil, and conduct water through them in a system of channels, so as to keep the beds in a constantly saturated state. To keep the plants alive is another matter, as we can testify by the fact that at Stoke Newington all the hardy species of *oxycoccus* and *vaccinium* have been very well grown in peat beds in the front of the rhododendrons, where there was no more moisture than resulted from the rain-fall. Here they grew and flowered in perfect health, but we never saw a ripe fruit on any of them. The best for culinary purposes is the American cranberry, *Oxycoccus macrocarpus*, of which there are several varieties. The English cranberry, *O. palustris*, is, however, quite worthy of a place in a suitable position.

STEPHANOTIS.—*G.*—The great secret in the cultivation of *Stephanotis* is to get the wood well ripened by growing it in the lightest part of the hot-house, and as near to the glass as possible. Let the shoots be laid in thinly, so that they may

have all the advantage of the sun to harden the wood. Of course vigorous growth is necessary to the production of good flowering shoots. This you will secure by potting in three parts fibrous peat and one turfy loam, with a little sand, and placing in the hothouse. In March cut back to three or five eyes, according to the strength of the shoots. Perhaps the reason you don't succeed with *Poinsetta pulcherrima* is because just at the time it wants most attention you leave it to shift for itself. This plant requires to be grown liberally on, with undiminished heat and moisture until it has flowered, when it may immediately go to rest by laying the pot on its side, and keeping dry till Midsummer. Then cut down your plants, but give them no water. When the new shoots are an inch long, shake out, and repot in small pots in half leaf-mould, half peat, with a little sand. Shift on into larger pots as they want it, and give them their final shift (using the same soil) the first week in October. Keep up both heat and moisture until they flower.

FROM THE EDITORIAL CHAIR.—Dear Friends, Readers of the *FLORAL WORLD*, I address you lovingly from the awful chair. It is an aged one, of the pattern which bears the cognomen of "Windsor." It has a rickety back, a flinty seat, it consists wholly of beechwood (or some other wood), is much worm-eaten, and like its occupant, some degrees the better for being somewhat worn. From this chair I have published many allocutions without shaking the popular nerves, and perpetrated many bulls without placing myself or any one else (except, mayhap, the printer) on the horns of a dilemma. The *FLORAL WORLD* now concludes the ninth year of its useful and elegant existence. Oh, think what a flight of time is a lapse of nine years! Think of the total number of our hearts' pulsations since the issue of No. 1 (I mean No. 1 old series). Ah, the articles that have been written and read, remembered or forgotten, since this little venture budded in the cold of January, 1858, and now blossoms in your presence in the warmth of December, 1866! Oh, think of the letters from various of you I have read in all that time. Yes, and think, too, of the letters I haven't read, and, consequently, haven't answered, and that lie in heaps before, as I twist and turn with fidgetty jerks upon the flinty seat of the awful chair. O chair, O chair, may your timbers never be shivered till the work be done. And oh, dread Reader, whose frown can crush, and whose smile is so decidedly profitable, dread Reader, sometimes flattered as "gentle," "discerning," "judicious," or "enlightened," receive my confession uttered in penitence, and bestow such punishment as is meet. I do not expect butcher's meat, nor would you meet me with such measure as I mete to you, for at this season of the year I know your forgivingness, and I address you as the "indulgent reader," who may have experienced the mental incapacity that results from having a capacity for pills. This neglect, dear friends, the neglect of hundreds of your letters, the doctor will tell you (if you ask him) is not my fault, but my misfortune. I have been physically out of sorts, and yet have had all sorts of physic. I have been rushing about with the hue of health on my cheek, and a dreadful faintness at my heart for three months past. How many ailments have I had? About five hundred and forty, beginning with rheumatics and ending with dyspepsia. The moment this number is printed I shall take a holiday; a few friends westward are already having the sunshine laid on, and several fat pigs are to have their necks twisted to afford me a welcome, and I shall prefer their meat to their music. I hope and expect to return in time to be just to all our correspondents who have been of late so grievously neglected. Forgive me this once, and I will do all I can to justify my next addressing you as "appreciative," "approbative," and "remunerative" readers, and may your aggregate shadow never be less.

On the 1st of January, 1867, will be published, price *Six pence*, No. 13 of the new series of the

FLORAL WORLD,

in which will appear for the first time, never to be repeated, a picture and description of the most beautiful rockery ever seen in the Editor's garden at Stoke Newington, and a more beautiful one is not likely to be seen there, for he doesn't intend to waste his money in building another. Also, a remarkable paper on herbaceous plants by The O'Shane; a complete, and perfect, and delectable and convincing paper on the *Auricula*, by Mr. Walsh; with many other, equally curious, wonderful, original, and divertive, the whole to conclude with a grand display of fireworks, in which many readers will discover replies to their queries that are at present concealed in the heap that confronts the editorial chair. This address concludes in accordance with propriety prompted by affection, with a wish that all our Readers may experience

A Merry Christmas

AND

A Happy New Year.

HARRILD, PRINTER, LONDON.

INDEX.

| | PAGE | | PAGE |
|--------------------------------------|---------------|--|-------------------------|
| Acacias and manure-water..... | 222 | Colchican laurel | 128 |
| Acrostichum aureum | 364 | Collections of fruit | 251 |
| Actinopteris radiata..... | 365 | Cool fernery | 3, 127 |
| Action of charcoal on vegetation ... | 311 | Cool vinery orchids..... | 213 |
| Amaryllis | 215 | Cotoneasters | 27 |
| American shrubs | 319 | Cranberries | 377 |
| Annual flowers, right use of..... | 52 | Crocuses..... | 298 |
| Apricots, peaches, and nectarines | | Currant-trees..... | 94 |
| in open borders..... | 377 | Crystal Palace autumn show..... | 316 |
| Aquatics | 62 | Crystal Palace rose show..... | 220, 248 |
| Aquilegia cerulea | 24, 56 | | |
| Asters, best varieties | 116 | Daffodils..... | 298 |
| Aubrietia deltoidea Campbelli | 23 | Dandy geranium | 127 |
| Aucubas | 28 | Deciduous trees for small gardens | 325 |
| Azalea Indica, the | 369 | Deutzia gracilis | 148 |
| | | Dew-drop and rose | 57 |
| Bed for drawing-room window..... | 329 | Diseased rose-leaves | 352 |
| Bedding and bedding plants, 94, 179, | | Disease of the vine and its remedy | 174 |
| 193, 201, 209, 275. | | Double primulas | 93 |
| Begonias, variegated..... | 42, 44 | | |
| Berry-bearing shrubs | 25 | Earth-worms..... | 127 |
| Berry-bearing solanums | 94 | Edible and ornamental gourds | 57 |
| Black grapes..... | 251 | Editorial chair, the | 378 |
| Bone waste | 62 | Education of gardeners | 60 |
| Borders, choice..... | 299 | Ericas, culture of | 169 |
| Bracken, the | 291 | Erythrina crista-galli | 146 |
| Bulbs for the garden..... | 288, 331 | Eucharis Amazonica | 138 |
| Bulbs in pots..... | 158 | Evergreen ferns for unheated fern- | |
| | | houses..... | 93 |
| Calceolarias dying..... | 256, 319 | Evergreens for windy situations ... | 320 |
| Calceolarias, herbaceous..... | 195 | Everlastings | 22 |
| Calceolaria hyssopifolia | 23 | Exotic aquatics, cultivation of | 238 |
| Camellias..... | 127, 158, 192 | | |
| Can peat plants be grown without | | Ferneries..... | 3, 32, 160, 254, 319 |
| peat? | 77 | Ferns, history, cultivation, etc., 64, 95, | |
| Carter's book on bedding | 320 | 256. | |
| Carnation and picotee | 74, 320 | Ferns, specimen | 262 |
| Ceanothus dentatus..... | 223 | Fern varieties, useful | 270 |
| Celery-fly and the Scotch system of | | Flora of Nice | 128 |
| celery culture | 173 | Flower-beds, forms of, and planting | |
| Celery, how to grow fine | 81 | them..... | 49, 99 |
| Chimonanthus fragrans | 320 | Flower-seeds, profitable..... | 319 |
| Choice garden | 300, 328 | Forming and managing grass lawns | 114 |
| Chrysanthemum cultivation | 341 | Fruiting jasmine | 32 |
| Chrysanthemum exhibitions | 375 | Fruit-trees near a pond | 63 |
| Chrysanthemum, history and culti- | | Fuchsias..... | 9, 39, 40, 42, 179, 251 |
| vation of..... | 339 | | |
| Cinerarias | 116 | Garden Guide 30, 58, 90, 122, 155, 187, | |
| Clianthus Dampieri | 24 | 217, 247, 285, 314, 350, 374. | |
| Climbers of fine character | 266 | Garden Oracle | 96, 377 |
| Clipping hedges | 255 | Garden peas, best varieties | 11 |

| | PAGE | | PAGE |
|---|-------------|---|----------|
| Garden potatoes | 50 | Nelumbiums | 215 |
| Garden vermin | 223 | New plants, 23, 55, 88, 118, 153, 186, 216, 246, 282, 314, 349, 373. | |
| Geraniums for bedding | 201, 219 | Notes on two beautiful ferns | 364 |
| Geranium pyramid | 131 | Novel and elegant town garden, a | 355 |
| Geraniums for conservatory | 162 | Novelties | 219 |
| Gladiolus | 257 | | |
| Gloxinias | 127, 319 | Old friend with a new face | 54 |
| Glycine sinensis | 184 | Open-air vines | 183 |
| Gooseberry caterpillar | 61 | Orange-trees | 94 |
| Gourds and marrows | 57, 109 | Orchids, cool vinery | 213 |
| Grape, claret | 68 | Ornamental grasses | 21 |
| Grapes for the million 33, 65, 100, 181, 198, 323. | | | |
| Grapes for walls | 34 | Pæonies, herbaceous | 32 |
| Grapes in ground vinery | 95 | Pæony-tree, or moutan | 205 |
| Grape Royal Muscadine | 67 | Pansy | 267 |
| Grapes, vineyard | 65 | Patchy lawn | 320 |
| Grass lawns | 114 | Peas, best varieties of garden | 11 |
| Greenhouse fernery | 3, 160, 319 | Peat plants | 77 |
| Ground vineries | 100 | Pelargoniums | 220, 250 |
| | | Pentstemon grandifolius | 24 |
| Hardy fernery | 254 | Pentstemons, hardy | 255 |
| Hardy greenhouse plants | 14 | Pentstemon and the phlox | 231 |
| Hardy herbaceous plants 63, 284, 300, 320, 344. | | Peppermint water | 85 |
| Hardy pentstemons | 255 | Pet plants, southernwood | 214 |
| Heating greenhouse from kitchen boiler | 94 | Phænicophorum Sechellarum | 24 |
| Herbaceous calceolarias | 195 | Phlox, list of varieties | 134 |
| Hoeing and watering | 185 | Phlox and pentstemon | 231 |
| Holly | 26 | Picotee and carnation | 74, 320 |
| Hot-beds | 86 | Pines | 251 |
| Hyacinths, and exhibitions of 125, 259 | | Pinks, carnations, and picotees | 74, 320 |
| Hyacinth, Roman | 298 | Plunging system | 256 |
| | | Pompones for exhibition | 71, 343 |
| Indian seeds | 223 | Pot culture of the vine | 152 |
| International Horticultural Exhibi- tion and Botanical Congress, 31, 60, 123, 157, 161, 190, 208. | | Potatoes, autumn-planted | 319 |
| Ivies in balconies | 64 | Potatoes, best garden | 50 |
| Ivy border | 128 | Primroses eaten by birds | 160 |
| Ixia and sparaxis | 299 | Primula prænitens or sinensis | 68 |
| | | Propagation of begonias | 44 |
| Keeping out frost, temperature of the soil | 347 | | |
| | | Ranunculus, cultivation of | 15, 295 |
| Ladies' flowers | 18 | Raphanus caudatus | 192 |
| Lady-fern | 240 | Reaction against bedding | 193 |
| Laying out a garden | 159 | Red spider | 63 |
| Lettuces for winter and spring | 229 | Ribes sanguinea | 192 |
| Lilies | 233 | Riddell's slow-combustion stove | 223 |
| Lily of the valley in pots | 84 | Rockwork and plants | 139 |
| Liquid manure | 192 | Rosery for summer | 167 |
| | | Roses for the garden | 366 |
| Magnolia grandiflora, moving | 63 | Roses | 32, 160 |
| Maiden-hair fern | 128 | Roses of 1865-66 | 225, 263 |
| Marchal Niel rose | 263 | Roses, new, for 1867 | 334 |
| Marrows and gourds | 109 | Roses, select | 288 |
| Melons | 252 | Roses on skirts of a lawn | 320 |
| Merry month of May | 151 | Royal Botanic Society, 124, 157, 188, 250, 219. | |
| Merthyr Tydvil flower-show | 251 | Royal Horticultural Society | 92, 124 |
| Mossy lawn | 255 | Royal Horticultural Society's Inter- national fruit show | 31 |
| Moutan, or tree peony | 205 | Royal Muscadine grape | 67 |
| Mushroom cultivation | 63, 307 | | |
| Naming of plants, on the | 62, 278 | Sale of plants | 96 |
| Narcissus juncifolius | 24 | Saxifragas, selection of | 64 |
| Neapolitan violet | 147 | Saxifragas and houseleeks | 329 |
| Nearly hardy greenhouse plants | 14 | Season, the, 1866 | 321 |
| | | Sedum fabarium | 310 |
| | | Seedling orange-trees | 160 |
| | | Selection of useful vegetables | 89 |

| | PAGE | | PAGE |
|-------------------------------------|---------------|--|----------|
| Selections of useful flowers | 119 | Tuberose | 296 |
| Shade for a fernhouse..... | 222 | Tulips for the borders..... | 297 |
| Shadows..... | 313 | Tulips for exhibition | 303 |
| Siberian squill | 299 | | |
| Skimmias (berry-bearing shrubs)... | 48 | United Horticultural Society, 92, | 218, |
| Small bedders | 64 | 315, 351. | |
| Smithfield Club Cattle Show | 31 | Useful shrubberies | 358 |
| Snow and its teachings | 37 | | |
| Some stove plants that bear cool | | Variegated begonias | 42 |
| treatment | 361 | Variegated geraniums for exhibi- | |
| Southernwood | 214 | tion | 352 |
| Sparaxis and ixia | 299 | Variegated plants | 32 |
| Specimen ferns | 262 | Vegetables, selection of useful | 89 |
| Spergula..... | 160 | Verbenas | 251 |
| Spinach, winter | 236 | Victoria Nursery | 60 |
| Spring flowers | 18, 160 | Vines and vineries, 61, 159, 174, 223, 287 | |
| Stand them in water | 237 | Vines for open-air culture | 183 |
| Statice | 192 | Vine, pot-culture of..... | 152 |
| Stephanotis | 377 | Vineyard grapes | 65 |
| Stipa pennata | 192, 223, 255 | Vittate begonias | 46 |
| Stocks, best varieties of garden .. | 80 | | |
| Strawberries..... | 252 | Wall grapes | 33 |
| Strawberry-growing in Kent..... | 245 | Waltonian case | 160 |
| Sweetly-smelling flowers..... | 104, 177 | Watering greenhouse plants | 159 |
| | | Watering and hoeing | 185 |
| Tacsonia molissima | 192 | White grapes..... | 252 |
| Tacsonia ignea | 127 | Willesden Horticultural Society .. | 287 |
| Taunton Horticultural Society..... | 286 | Window plants | 96 |
| Testimonial to the Rev. S. R. Hole | 61 | Winter spinach..... | 236 |
| Thibaudia Jessicæ | 24 | Wireworm after geraniums | 222 |
| Thorns, English and American .. | 29 | Wistaria consequaria | 184 |
| Thrip in vinery..... | 255 | | |
| Tomato and its uses..... | 111 | Zonale begonias | 45 |
| Tritoma uvaria | 112 | Zonale and other geraniums..... | 162, 251 |
| Tropical beds | 179 | | |

NEW PLANTS.

| | | | |
|--------------------------------------|--------|------------------------------------|----------|
| Adiantum Farleyense..... | 373 | Camellia Roma Risorta | 153 |
| Adiantum Lindenii | 373 | Calceolaria Hyssopifolia | 23 |
| Adiantum velutinum | 373 | Clianthus Dampieri marginata | 24 |
| Alnus glutinosa v. aurea..... | 350 | Ceropegia sororia | 187 |
| Ancylogyne longiflora | 282 | Chameranthemum Beyrichii | 118 |
| Aquilegia cœrulea | 24, 56 | Comparettia coccinea | 216 |
| Aubrietia deltoidea Campbelli | 23 | Cotyledon fascicularis..... | 349 |
| Angræcum Chailluanum..... | 246 | Cœlogyne corrugata | 349 |
| Angræcum sesquipedale | 186 | Cymbidium Hookerianum | 186 |
| Anthurium Scherzerianum..... | 247 | | |
| Azalea Reine des Pays-Bas | 216 | Dendrobium dixanthum..... | 118, 216 |
| | | Dendrobium parcum | 373 |
| Batemannia grandiflora | 153 | Dianella Tasmanica | 57 |
| Bauhinia tomentosa..... | 153 | Didymoplexis pallida | 89 |
| Begonia baccata | 56 | Diffenbachia gigantea | 153 |
| Begonia geranoides | 246 | | |
| Begonia argyreo-violascens | 154 | Elais Guinensis | 350 |
| Bifrenaria inodora v. xanthina | 373 | Epidendrum myranthum | 56 |
| Bolbophyllum reticulatum | 349 | Ericinella Mannii..... | 155 |
| Bougainvillea spectabilis | 154 | Eulophia euglossa | 88 |
| Brachystelma Barberiæ..... | 373 | Eulophia virens..... | 246 |
| | | | |
| Cattleya Dowiana | 373 | Fernandesia robusta | 283 |
| Camellia Clodia | 154 | Fremontia Californica..... | 349 |
| Camellia Contessa Pasolini | 88 | | |
| Camellia Marianna Talenti | 284 | Gladiolus papilio | 153 |
| Camellia Mistress Dombrain..... | 350 | Glyptostrobos pendulus | 349 |

| | PAGE | | PAGE |
|--|----------|---|----------|
| <i>Habranthus fulgens</i> | 118, 216 | <i>Osbeckia rubicunda</i> | 216 |
| <i>Helipterum cotula</i> | 349 | <i>Palafoxia Hookeriana</i> | 55 |
| <i>Huntleya cerina</i> | 314 | <i>Palumbina candida</i> | 55 |
| <i>Hyophorbe amaricaulis</i> | 118 | <i>Pentstemon grandifolius</i> | 24 |
| <i>Hyophorbe Verschaffelti</i> | 118 | <i>Peperoma marmorata</i> | 154 |
| <i>Hypericum Sampsoni</i> | 55 | <i>Peristrophe lanceolaria</i> | 153 |
| <i>Ilex latifolia</i> | 314 | <i>Phaenicophorum Sechellarum</i> | 24 |
| <i>Inula salicina</i> | 89 | <i>Phormium tenax foliis variegatis</i> ... | 284 |
| <i>Iris reticulata</i> | 187 | <i>Polychilos cornu-cervi</i> | 186, 216 |
| <i>Jacaranda digitaliflora albiflora</i> ... | 350 | <i>Polystachya pubescens</i> | 246 |
| <i>Kæmpferia Roscoeana</i> | 314 | <i>Pompona chrysanthemum vars.</i> | 350 |
| <i>Kleinia fulgens</i> | 283 | <i>Primula intermedia</i> | 349 |
| <i>Lælia grandis</i> | 88 | <i>Quercus Ravenscroftiana</i> | 373 |
| <i>Lilium formosum</i> | 88 | <i>Rhododendron Archiduc Etienne</i> ... | 350 |
| <i>Lobelia coronopifolia</i> | 247 | <i>Rhododendron Hodgsoni</i> | 56 |
| <i>Lobelia nicotianæfolia</i> | 282 | <i>Rhododendron Fortunei</i> | 314 |
| <i>Luisia Pysche</i> | 118 | <i>Rodriguezia Batemani</i> | 373 |
| <i>Maranta splendida</i> | 154 | <i>Rose Isabella Sprunt</i> | 247 |
| <i>Meconopsis Nepalensis</i> | 282 | <i>Saccolabium ampullaceum</i> | 284 |
| <i>Miltonia anceps</i> | 155 | <i>Sanchezia nobilis</i> | 284 |
| <i>Microcachrys tetragona</i> | 187 | <i>Scilla Cooperi</i> | 246 |
| <i>Mussaenda luteola</i> | 155 | <i>Sedum drymarioides</i> | 55 |
| <i>Muschia Woollastonii</i> | 350 | <i>Sempervivum Paivæ</i> | 283 |
| <i>Myrsiphyllum asparagoides</i> | 282 | <i>Sparaxis pulcherrima</i> | 88 |
| <i>Narcissus juncifolius</i> | 24 | <i>Tacsonia Van-Volxemii</i> | 155 |
| <i>Nasturtium Cantonieuse</i> | 55 | <i>Thibaudia coronaria</i> | 186 |
| <i>Nierembergia rivularis</i> | 373 | <i>Thibaudia cordifolia</i> | 88 |
| <i>Nierembergia Veitchii</i> | 314 | <i>Thibaudia Jessicæ</i> | 24 |
| <i>Oncidium Marshallianum</i> | 373 | <i>Tillandsia xiphioides</i> | 88 |
| <i>Ophioxylon Chinense</i> | 55 | <i>Trichinium Manglesi</i> | 186 |
| | | <i>Trichopilia turialvæ</i> | 55 |
| | | <i>Warscewizella velata</i> | 246 |

ENGRAVINGS.

| | | | |
|---|-----|---|----------|
| <i>Ancylogyne longiflora</i> | 282 | <i>Lobelia nicotianæfolia</i> | 288 |
| <i>Athyrium filix-fœmina, grandiceps</i> | 243 | <i>Luisia Psyche</i> | 113 |
| <i>Athyrium filix-fœmina, v. crispum</i> | 242 | <i>Meconopsis Nepalensis</i> | 282 |
| <i>Athyrium filix-fœmina, multifidum</i> | 244 | <i>Myrsiphyllum asparagoides</i> | 283 |
| <i>Batemannia grandiflora</i> | 154 | <i>Palafoxia Hookeriana</i> | 55 |
| <i>Bauhinia tomentosa</i> | 153 | <i>Palumbina candida</i> | 55 |
| <i>Begonia dædalea</i> | 47 | <i>Peristrophe lanceolaria</i> | 154 |
| <i>Bird's-eye view of garden of James Crute, Esq.</i> | 354 | <i>Plan of flower-bed</i> | 48 |
| <i>Calceolaria hyssopifolia</i> | 24 | <i>Plan of garden</i> | 98 |
| <i>Chamæranthemum Beyrichii</i> | 118 | <i>Polychilos cornu cervi</i> | 186, 216 |
| <i>Comparettia coccinea</i> | 216 | <i>Rockwork and bracken</i> | 290 |
| <i>Dennis's people's vinery</i> | 101 | <i>Sparaxis pulcherrima</i> | 88 |
| <i>Dianella Tasmanica</i> | 56 | <i>Thibaudia Jessicæ</i> | 24 |
| <i>Geranium pyramid</i> | 130 | <i>Trichinium Manglesi</i> | 186 |
| <i>Gladiolus papilio</i> | 153 | <i>Trichopilia turialvæ</i> | 56 |
| <i>Greenhouse fernery</i> | 3 | <i>Vinery at Cyfarthfa Castle</i> | 324 |
| <i>Ground and sections of garden of James Crute, Esq.</i> | 357 | <i>Wells's portable ground vinery</i> | 102 |
| <i>Ground vinery and protective beds</i> | 180 | | |
| <i>Lælia grandis</i> | 88 | | |



3 5185 00292 4692



MAR 70



N. MANCHESTER,
INDIANA

